# CRAFT REGULATION AND THE DIVISION OF LABOUR:

# ENGINEERS AND COMPOSITORS IN BRITAIN, 1890-1914

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# THESIS ABSTRACT

This thesis deals with the struggles of two groups of skilled workers in late 19th century Britain, engineers and compositors, to defend their position in the division of labour in the face of pressures towards technical and organisational change. Its principal concern is to trace and explain the divergent long-run experiences of these two occupational groups, focusing particularly on the period 1890-1914.

The thesis opens with a critical review of the dominant theoretical approaches to the division of labour. Their tendency to deduce the evolution of the division of labour from a unilinear model of capitalist development, it is argued, renders them incapable of providing an adequate account of such central phenomena as the ongoing complexity of the distribution of skills in the labour force and the impact of industrial conflict on the division of labour itself. Elements of an alternative approach offering a more satisfactory relationship between theory and empirical cases are sketched out; their practical fecundity is explored in the body of the thesis.

The body of the thesis is divided into three parts. Part I focuses on the relations between skilled workers and employers in engineering and printing before major waves of mechanisation in the 1890s, highlighting those structural features which conditioned both the forms and outcomes of conflicts over technical change in each case. Accordingly, the characteristics of market structure, the division of labour, and trade union and employer organisation are analysed for both industries. The principal conclusion of this section is that craft regulation had been eroded to a considerable extent in both industries by employers' attempts to cheapen and intensify skilled labour within the framework of the existing division of labour.

Part II presents a primarily narrative account of the conflicts sparked off by a major wave of technical and organisational change in the two industries during the 1890s, together with the extent of their resolution up to 1914. The early success of compositors in capturing control of mechanical typesetting is contrasted with the employers' victory over similar issues in the 1897-8 engineering lockout. These variations in craftsmen's ability to capture new technology placed the two trades on divergent paths in relation to their future position in the division of labour. The remainder of this section examines engineering employers' failure fully to transform the division of labour before 1914, together with the progressive consolidation of craft regulation by the typographical unions.

Part III explores the long-term outcomes for the position of skilled workers in the division of labour, taking account of developments in the inter-war years, which it is argued confirm the divergent fates of the two groups. The concluding chapter attempts to identify the central structural forces conditioning the differences in the outcomes in the two cases, and to balance their importance against that of the strategic choices of the historical actors. The thesis as a whole highlights the role of conflict between skilled workers and employers in determining the consequences of technical and organisational change for the position of craftsmen in the division of labour within the limits set by market forces and technology. The outcomes of industrial conflict are in turn traced back to variations in the balance of forces between skilled workers and employers, emphasising the impact of market structure and the preexisting division of labour for the bargaining power and solidarity of each group. At the same time, it is argued that structural factors conditioned but did not determine the actual pattern of alliances formed by workers and employers, which depended in large measure on an essentially political process influenced by specific historical conjunctures, past experiences of conflict and cooperation, and the strategic choices of each group of actors.

TO

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List of Abbreviations in the Text and Footnotes

| | |
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| AEU | Amalgamated Engineering Union |
| AR | Annual Report |
| ASE | Amalgamated Society of Engineers |
| ASMP | Amalgamated Society of Metal Planers |
| AST | Amalgamated Society of Toolmakers |
| BCPS | British and Colonial Printer and Stationer |
| CC | Central Conference |
| DC | District Committee |
| EC | Executive Committee |
| EEF | Engineering Employers' Federation |
| FAC | Final Appeals Court |
| FEST | Federation of Engineering and Shipbuilding Trades |
| FMP | Federation of Master Printers |
| ITEA | Iron Trades Employers' Association |
| JC | Joint Committee |
| LSC | London Society of Compositors |
| LTJ | London Typographical Journal |
| LUA | Linotype Users' Association |
| MC | Members' Circular/Monthly Circular |
| MJ | Monthly Journal |
| MJ&R | Monthly Journal and Report |
| MPA | Master Printers' Association |
| MR | Monthly Report |
| NATSOPA | National Society of Operative Printers and Assistants |
| NAUL | National Amalgamated Union of Labour |
| NPKTF | National Printing and Kindred Trades Federation |

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| NSOPA | National Society of Operative Printers' Assistants |
| ODD | Organising District Delegate |
| PKTF | Printing and Kindred Trades Federation |
| PLU | Printing Labourers' Union |
| PMMTS | Printing Machine Managers' Trade Society |
| PP | Parliamentary Papers |
| QDM | Quarterly Delegate Meeting |
| QR | Quarterly Report |
| RC | Representative Council/Royal Commission |
| SC | Select Committee |
| SDF | Social Democratic Federation |
| SEMS | Steam Engine Makers' Society |
| STA | Scottish Typographical Association |
| STC | Scottish Typographical Circular |
| STJ | Scottish Typographical Journal |
| TA | Typographical Association |
| TC | Typographical Circular |
| TNLU | Tyneside and National Labour Union |
| TUC | Trades Union Congress |
| UMWA | United Machine Workers' Association |
| UPA | United Patternmakers' Association |

# Introduction

## The Division of Labour in History

This thesis deals with the struggles of two groups of skilled workers in late 19th century Britain - engineers and compositors - to defend their position in the division of labour in the face of pressures towards technical and organisational change. The choice of this subject flows from a desire to bring together a prominent theme in recent writing on the social history of the working class - skilled workers' resistance to the extension of managerial control over the organisation of production - with current debates on the development of the division of labour in advanced industrial societies.

As historians in Britain, the United States, and France began in the 1960s to turn away from the study of labour institutions and organisations in search of the authentic experience of the rank and file worker, their attention was increasingly drawn to the pervasive conflicts between skilled workers and their employers over whose values should govern the division of labour. Drawing on prior contributions by Thompson and Hobsbawm,[1] historians such as Montgomery Hinton, and Scott have rediscovered the struggles of 19th and early 20th century skilled workers to impose on industrial production a comprehensive framework of regulation rooted in their conception of themselves as craftsmen. This alternative 'moral economy' of the workshop, reinforced by custom, ritual, and perception of market interest, contained claims to autonomy and control on

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Place of publication is London unless otherwise indicated.

[1] E.P. Thompson, The Making of the English Working Class, (Revised edition, Harmondsworth, 1968), especially Ch.8; ibid., 'Time, Work Discipline and Industrial Capitalism', Past and Present 38 (1967); and ibid., 'The Moral Economy of the English Crowd in the Eighteenth Century', Past and Present 50 (1971); these last two articles are concerned with the transition to a capitalist market economy and are only applied by analogy to struggles over the division of labour within machine production. E.J. Hobsbawm, Labouring Men, (1964), especially the essay, 'Custom, Wages and Workload'.

the job and to a distinctive place in the division of labour which skilled workers defended tenaciously against encroachments, whether by their employers or by other groups of workers.[2]

In all three countries at the turn of the century, as these historians have shown, managerial efforts to reorganise production by promoting labourers onto machines, by forcing craftsmen to work more than one machine at a time, and by introducing new systems of incentive payment and scientific management were opposed by a battery of weapons including slowdowns, refusal to instruct labourers, boycotts, sympathetic action, short stoppages, and prolonged strikes.

Historians have seen a deep significance in these struggles for the development of labour politics at the turn of the 20th century, and in some cases have discerned a movement for a new mode of production based on workers' control emerging from these efforts to defend craft prerogatives within the framework of industrial capitalism.[3] Yet by contrast comparatively little

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[2] D. Montgomery, Workers' Control in America, (Cambridge, 1979); J. Hinton, The First Shop Stewards' Movement, (1973); and J. Scott, The Glassworkers of Carmaux, (Cambridge, Mass., 1974). Other works in a similar tradition include Britian, I. Prothero, Artisans and Politics in Early 19th Century London, (Folkestone, 1979); for the US, A. Dawley, Class and Community: The Industrial Revolution in Lynn, Massachusetts, (Cambridge, Mass., 1976); for France, B. Moss, The Origins of the French Labour Movement: The Socialism of Skilled Workers, (Berkeley, 1976); W. Sewell, 'Property, Labour and the Emergence of Socialism in France, 1789-1848', (unpublished paper, Institute for Advanced Study, Princeton, 1978); and ibid., 'Corporations républicaines: The Revolutionary Idiom of Parisian Workers in 1848', Comparative Studies in Society and History, 21 (2) (1979); P. Fridenson, 'France, Etats-unis: genèse de l'usine nowvelle', Recherches 32-33 (1978) is a comparison of the French and American experiences.

[3] See especially Montgomery, Workers' Control; Moss, Origins; and Hinton, Shop Stewards, who gives a larger independent role to politics and ideology. For an exchange on the relationship between workplace struggles and labour politics see J. Monds, 'Workers' Control and the Historians: The New Economism' and the reply by Hinton in New Left Review 97 (1976).

attention has been paid to the consequences of such struggles for the longer-range development of the division of labour in particular industries or national economies. This lacuna stems in large measure from historians' implicit reliance on a theoretical framework which, whether drawn from Marxism or modernisation theory, held that craft organisation was bound up with archaic forms of production destined to be swept away by the inexorable march of industrial development, at least so long as such development remained within the confines of a capitalist economy.

The tacit adherence to a teleological model of the evolution of the division of labour can be found among historians with widely divergent methodological approaches and ideological orientations. Thus for example in the labour aristocracy debate which has dominated much of recent British social history, Marxist and anti-Marxist historians have largely been agreed that at some point between 1850 and 1914 technical and organisational change undermined the objective foundations of skilled workers' privileged position in the workplace, thereby reducing the sectional diversity of the working class. The main difference have arisen over the periodisation of this development and, of course, over its social and political implications. Thus both Foster and Pelling have argued for the homogeneously proletarian character of the British working class during the third quarter of the 19th century, while Hobsbawm and Gray date the erosion of skilled workers' position from the 1890s.[4] From another quarter, the single

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[4] J. Foster, Class Struggle and the Industrial Revolution, (1974), ch.7 and especially pp.223-38; H. Pelling, 'The Concept of the Labour Aristocracy' in Popular Politics and Society in Late Victorian Britain, (1968); G. Stedman Jones, 'Class Struggle and the Industrial Revolution', New Left Review 90 (1975), pp.63-65, accepts a modified version of Foster's position. E.J. Hobsbawm 'The Labour Aristocracy in 19th Century Britain' in ibid., Labouring Men, pp.289, 300-301; and R.Q. Gray, The Labour Aristocracy in Victorian Edinburg (Oxford, 1976), ch.9. The whole notion of a 'homogenisation' of the working class in 19th century Britain is criticised effectively by A. Reid in 'The Labour Aristocracy in British Social History', Our History 5(1979) and ibid., The Division of Labour in the British Shipbuilding Industry, 1880-1920 - with Special Reference to Clydeside, (Cambridge Ph.D. Thesis, 1980), ch.7.

attempt we possess at a general interpretation of working class life in the major industrial nations of Western Europe at the end of the 19th century, Peter Stearns Lives of Labour, (1975) while paying tribute to the diversity of experience among various trades, nonetheless adopts as its central focus the adaptation of workers to the inevitable loss of autonomy and control at work consequent on the introduction of new technology and on changes in business organisation.

If social historians have often been content to rely upon an unexamined evolutionary model of the development of the division of labour as a backdrop to their own empirical studies, contemporary social theorists and researchers have in turn increasingly come to question such models, inspired in part by the work of social historians themselves. In the English-speaking world the problems of conceptualising the development of the division of labour have been raised most sharply by the debate touched off by Braverman's Labour and Monopoly Capital[5] and by the emerging literature on labour market segmentation. In choosing to focus on these discussions, our contention is not that they permit an exhaustive review of theoretical approaches to the division of labour - a task tha would carry us well beyond the confines of this thesis - but rather that they high light some of the ways in which developments in the realm of theory have opened up a space within which empirical and historical research can offer a distinctive contribution. While Braverman's work is devoted to the exposition of a deskilling model, the strictures raised against it in the discussion which follows apply with equal force to those evolutionary theories which arrive at opposite conclusions, namely that the development of the division of labour results in a steady increase in the skills and education of the labour force, as for example in human capital theory.[6] A more sophisticated version of this second view can

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[5] (New York, 1974).

[6] G. Becker, Human Capital, (New York, 1964).

be found in the work of the so-called 'new working class' theorists, who argue that advanced technology, particularly automation, generates new skills and forms of work organisation which progressively supersede older ones based on craft and assembly line methods.[7] The evolutionary assumptions shared by 'deskilling' and 'upgrading' theorists lead both groups to agree that technical progress tends to eliminate craft skills and methods of production; the two groups differ principally on the skill content of the new jobs which replace them.

Labour and Monopoly Capital represents the most powerful contemporary restatement of the view that the development of the division of labour capitalism tends, in the long run, to create a relatively deskilled and homogenous proletariat. In attempting to extend Marx's analysis of the labour process into the 20th century, Braverman set out to delineate both the transformation of the division of labour within particular occupations and that between occupations in the economy as a whole (what Marx calls the social division of labour). We will confine our present discussion of Braverman's work to his account of the transformation of blue-collar work, at the risk of obscuring his more original contributions to the analysis of changes in office work and of long-term shifts in the occupational structure itself

Braverman, like Marx, sees the development of the division of labour as a series of stages in the separation of conception and execution, whereby

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[7] S. Mallet, The New Working Class, (trans. A. and B. Shepherd, Nottingham, 1975); A. Touraine, La conscience ouvrière, (Paris, 1966). Good critical reviews of the literature appear in M. Mann, Consciousness and Action Among the Western Working Class, (1973); D. Gallie, In Search of the New Working Class, (Cambridge, 1978), ch.1; and C. Sabel, Industrial Conflict and the Sociology of the Labour Market, (unpublished manuscript forthcoming from Cambridge University Press, based on a Harvard Ph.D. Thesis 1978), chs.2-4.

knowledge of and control over the labour process is expropriated from the direct producers by managers and technicians in the service of capital.[8] Stripped of their particular skills and confined within a fragmented and hierarchical division of labour, industrial workers come to approximate ever more closely to the ideal of abstract labour power. This analysis takes as its point of departure Marx's schema in volume one of Capital in which simple cooperation gives way to manufacture and then to machine production, as the worker loses control first of the productive process as a whole and the appropriation of the product, and then over the particular task in which he is engaged.[9] Within modern machine production, Braverman sees the deskilling

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8 In this exposition we have focused on the central continuities between Marx and Braverman's analyses. Other commentators have drawn attention to significant areas of divergence, such as the absence in Braverman's account of a theory of crisis tendencies based on a falling rate of profit caused by a rising organic composition of capital. See D. Stark, 'Class Structure, Class Struggle, and the Labour Process: A Critique of Braverman', (unpublished paper, Harvard University, 1978), pp.18-43; and M. Burawoy, 'Towards a Marxist Theory of the Labour Process: Braverman and Beyond', Politics and Society, 8(4) (1978). These divergences are, however, of minor importance for the issues discussed here.

9 Marx, Capital, vol.I (trans. B. Fowkes, Harmondsworth, 1976), chs.13-15. In the unpublished sixth chapter entitled 'Results of the Immediate Process of Production', Marx draws a distinction between 'formal subordination' and 'real subordination' of the worker to the capitalist organisation of production. This distinction is related to that between 'manufacture' and 'modern industry' or 'machine production', but not identical with it, since real subordination may not yet prevail in all areas of the factory despite the transition to machine production; this chapter is included as an appendix in the Penguin Marx Library edition of Capital vol.I, op. cit.. Several writers have sought to develop the distinction between 'real' and 'formal' subordination as a basis for analysing struggles between managers and workers over the reorganisation of production within modern industry. See Brighton Labour Process Group, The Capitalist Labour Process', Capital and Class 1 (1977); and T. Elger, 'Valorisation and "Deskilling": A Critique of Braverman', Capital and Class 7 (1979), pp.63-67. For the suggestion that these categories provide an appropriate point of departure for analyses of industrial conflict in 19th century Britain, see Stedman Jones, 'Class Struggle', pp.49-50.

of the worker as the result of two complementary developments: the systematic reorganisation of the division of labour according to the principles of 'scientific management' and the continuous application of science and technology to industrial production.

In order to eliminate those vestiges of craft control which had survived the transition to machine production, management embarked on a self-conscious programme of reorganising the division of labour. Following principles first enunciated by Taylor at the turn of the century, management has continuously reduced the knowledge and discretion of the individual worker, has centralised the planning and direction of production in its own hands, and has imposed on the shop floor a fragmented and tightly supervised distribution of tasks. This process has gone hand in hand with the application of scientific knowledge to production and the consequent development of ever more advanced forms of mechanisation. The capacity to control production is thus increasingly polarised between managers and technicians on the one hand and shop floor workers on the other:[10]

> The more science is incorporated into the labour process, the less the worker understands of the process; the more sophisticated an intellectual product the machine becomes, the less control and comprehension of the machine the worker has.

By removing the last remaining elements of skill and initiative from the labour process, automation - of which Braverman treats numerically-controlled machine-tools as the most advanced representative - reduces the worker to a passive attendant of the machine. In a similar vein, the French Marxist industrial sociologist Michel Freyssenet, who developed a model analogous to Braverman's independently, treats automation as a fourth distinct stage in

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[10] Braverman, Labour and Monopoly Capital, p.425.

the capitalist division of labour, in which the worker is separated from physical contact with the product.[11]

Braverman is well aware of the uneven pattern of development across particular industries; indeed, this phenomenon plays a central role in his analysis of shifts in the occupational structure, as labour tends to pile up in relatively unmechanised sectors which are then transformed in turn:[12]

> This displacement of labour as the subjective element of the process, and its subordination as an objective element in a productive process now conducted by management, is an ideal realised by capital only within definite limits, and unevenly among industries. The principle is itself restrained in its application by the nature of the various specific and determinate processes of production. Moreover, its very application brings into being new crafts and technical specialities which are at first the province of labour rather than management. Thus in industry all forms of labour coexist: the craft, the hand or machine detail worker, the automatic machine or flow process.

The survival of older forms of production does not, however, imply the existence of counter-tendencies to the basic deskilling model, but it is rather the product of temporary local obstacles to the application of the principles at work in the rest of the economy, which will ultimately be extended to a greater or lesser extent to these sectors as well. Thus as his recent defenders have been at pains to reiterate,[13] Braverman offers us a classic evolutionary model, which explains away present diversity by reference to a postulated unitary future, itself the product of a unilinear pattern of development.

As an indictment of the 'degradation of work in the 20th century', Labour and Monopoly Capital stands as a document of undoubted moral force, and serves as a valuable corrective to the over-sanguine pronouncements of

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[11] M. Freyssenet, La division capitaliste du travail, (Paris, 1977) especially pp.53-69.

[12] Braverman, Labour and Monopoly Capital, p.172.

[13] See A. Zimbalist, (ed.), Case Studies on the Labour Process, especially his introduction, pp.xv-xvi.

industrial sociologists in the 1950s and 60s on the human consequences of automation. But in the course of the lively debate inspired by Braverman's work, a range of substantive and methodological criticisms have been raised which taken together amount to a fundamental challenge to its global analytical framework.[14] Drawing on arguments advanced in this debate and on results emerging from the related literature on labour market segmentation, we hope to point the way towards an analytic framework which will be both theoretically more compelling and empirically more fruitful.

The principal substantive objections raised by Braverman's critics have centered on the adequacy of the deskilling model as an account of the development of the division of labour under capitalism.[15] Much of this criticism has centered on the structural sources of diversity within the division of labour. First, attention has been drawn to the systematic reproduction of highly skilled manual workers as a result of progress in the division of labour. Braverman's model stresses the polarisation of knowledge and control over production between managers and technicians on the one hand, and the working class as a whole on the other. Considerable evidence exists, however, to suggest that this process must also be understood as one of polarisation within the working class itself. As Sabel has persuasively argued, each wave of technical innovation even as it reduces the skills of a large

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14 The major reviews and critical responses to Braverman's work include: Stark, 'Class Structure'; Burawoy, 'A Marxist Theory of the Labour Process'; Elger, 'Valorisation and "Deskilling"'; R. Jacoby, 'Review of Braverman', Telos 27 (1976); G. Mackenzie, 'The Political Economy of the American Working Class', British Journal of Sociology 28(2) (1977); A. Friedman, Industry and Labour, (1977); R. Coombes, 'Labour and Monopoly Capital', New Left Review 107 (1978); J. Rubery, 'Structured Labour Markets, Worker Organisation and Low Pay', Cambridge Journal of Economics, 2(1) (1978); and T. Cutler, 'The Romance of Labour', Economy and Society 7(1) (1978).

15 The most extensive critique of Braverman on this question is Elger, 'Valorisation and "Deskilling"'.

body of workers at the same time creates a demand for a smaller number of workers with enhanced skills to install, repair, and even design new machinery, and to adapt new processes to shop floor conditions:[16]

> ...As production becomes more mechanised, it becomes more prone to (ever more costly) disturbances. It is thus impossible to dispense with a core of skilled workers. Whether they are engaged in repairing the existing equipment or installing the next generation of technology, they must be capable of understanding each task as part of a larger complex of tasks, as a case of the application of the overarching principles of construction. They must, in other words, grasp the principles of a given technology abstractly enough so that they can repair defects which occur for the first time.

Such workers may tend to form a progressively smaller proportion of the labour force as a whole, certain of their skills may be routinised and devalued while others pass from one craft to another, but evidence from both large integrated car plants and automated chemical process plants supports the view that they cannot be dispensed with as a social category.[17]

A second significant line of demarcation separates those workers with intermediate or plant-specific skills from ordinary unskilled workers.

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16 Sabel, Industrial Conflict, ch.2, pp.33-34.

17 On car plants, see the studies by A. Touraine, L'évolution du travail ouvrier aux usines Renault, (Paris, 1955) and P. Naville, J.-P. Bardou, P. Brachet, and C. Lévy, L'état entrepreneur: le cas de la régie Renault, (Paris, 1969). These studies are extensively reanalysed by Freyssenet, Division capitaliste du travail, ch.2, and by Sabel, Industrial Conflict, ch.2, pp.47-60. On skilled craftsmen in chemical plants, see D. Wedderburn and R. Crompton, Workers' Attitudes and Technology, (Cambridge, 1965); Gallie, New Working Class; and the papers by Coriat, Dadoy, and Linhart in the proceedings of the Colloque de Dourdan, La division du travail, (Paris, 1978). Freyssenet, like Sabel, puts forward a polarisation model in which progress in the division of labour calls forth new groups of 'super-skilled' (surqualifiés) workers even as it deskills a larger number, and this process is then applied in turn to the ranks of the super-skilled themselves. But when he comes to analyse the transition to automation, Freyssenet tacitly discards polarisation in favour of a straightforward deskilling model, so that the upshot of his account converges strikingly with Braverman's. See ibid., Division capitaliste du travail, pp.53-85.

Studies of both the 'new working class' and of internal labour markets have emphasised the strategic importance within technically advanced production processes of workers with a body of particular skills generally obtained on the job. Such workers, of whom control panel operators in automated chemical plants are the best-known example, are responsible for supervising expensive capital equipment, and management must rely on their accumulated experience of its operation if costly and dangerous breakdowns are to be avoided.[18] In more conventional forms of mass production such as those found in the car industry, large numbers of workers with intermediate skills such as tool-setters are likewise required to maintain the flow of Taylorised and interdependent production processes, though these may be recruited both from the ranks of downwardly mobile craftsmen and upwardly mobile ex-unskilled workers.[19] Despite their strategic importance, the plant-specific character of such workers' skills leaves them dependent on a single employer, by contrast to the fully-skilled craftsman able to change jobs freely because his skills are recognised on external labour market.[20] At the same time, this dependence, together with the privileges these workers enjoy in the plant, their evident bargaining power, and their distinctive behaviour in industrial conflicts, make it impossible to assimilate them to a model of abstract labour power.

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[18] In addition to the studies cited note 7 above, see P. Doeringer and M.J. Piore, Internal Labour Markets and Manpower Analysis, (Lexington, Mass., 1971), and M. Mann, Workers on the Move, (Cambridge, 1973).

[19] Naville et al., L'état entrepreneur; L. Sayles, Industrial Work Groups: Behaviour and Control, (New York, 1958); Sabel, Industrial Conflict, chs.2-3.

[20] The dependence of these workers on the internal labour market is particularly stressed by Mann, Workers on the Move, ch.3, and Sabel, Industrial Conflict, chs.2-4.

Finally, detailed empirical studies of the introduction of particular innovations which have been presented as paradigmatic examples of deskilling cast further doubt on the analytic value of this concept. The self-acting mule appears in Capital as a crucial example of the use of machinery by capitalists to dislodge hand craftsmen from their position within the division of labour. But Lazonick's study of the introduction of the self-acting mule in the British cotton textile industry shows that hand spinners were effectively able to capture control over the new machines, both because their employers were divided amongst themselves by competition and because the skilled workers themselves came to assume supervisory functions over their female and juvenile subordinates.[21] Similarly, Jones' contemporary investigation of the impact on British engineering of the numerically-controlled machine tools which figure so prominently in Labour and Monopoly Capital reveals a wide range of outcomes - including in some cases the enhancement of craftsmen's skills - depending on market structures, managerial strategies, and union organisation.[22]

If empirical studies of the division of labour in advanced sectors cast doubt on the deskilling model as an image of the future, the literature on labour market segmentation suggests that its predictions of the disappearance of backward sectors are founded on a failure to analyse the economic context of innovation at the level of the individual firm. Braverman, like many contemporary Marxists, derives his analysis of the labour process directly from general pressures towards capital accumulation operating at the level of the economy as a whole. But as Friedman, Rubery, and others have suggested,

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[21] W. Lazonick, 'Industrial Relations and Technical Change: The Case of the Self-Acting Mule', Cambridge Journal of Economics 3(3), (1979).

[22] B. Jones, 'Destruction or Re-Distribution of Engineering Skills?: The Case of Numerical Control', in S. Wood (ed.), Labour and Deskilling, (forthcoming 1981).

this analysis takes place at too high a level of abstraction to explain why individual firms in particular sectors of the economy introduce new techniques, and obscures the link between advanced and backward sectors.[23] Studies of labour market segmentation have demonstrated that there are systematic divergences between those firms which invest in capital-intensive technology and those which rely on archaic methods of production: large firms will even create divisions between their main plants producing for stable demand with advanced technology and subsidiaries producing for unstable demand with outdated techniques characteristic of the secondary sector. In many industries such as automobiles or electronics, the small firms which comprise the secondary sector are systematically linked to the large firms of the primary sector by sub-contracting arrangements which enable the uncertainties associated with seasonal and cyclical fluctuations in demand to be passed on to the former.[24] There can therefore be said to exist structural tendencies

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[23] Friedman, Industry and Labour, passim.; Rubery, 'Structured Labour Markets'; Cutler, 'Romance of Labour'. It should be evident that we are out of sympathy with those of Braverman's critics who have suggested that his analysis of the labour process needs to be more tightly bound up with global analyses of valorisation and accumulation, e.g., Brighton Labour Process Group, 'Capitalist Labour Process'; Coombes, 'Labour and Monopoly Capital'; and Elger, 'Valorisation and "Deskilling"'. While French scholars pursuing an analogous project have produced certain interesting results, their willingness to deduce developments in the labour process from general tendencies of capitalist development leads them on the whole to reproduce most of the weaknesses of Braverman's analysis, including an uncritical acceptance of the deskilling thesis. See M. Aglietta, A Theory of Capitalist Regulation, (1979), part I, and B. Coriat, L'Atelier et le chronomètre: une étude sur le taylorisme, le fordisme, et la production de masse, (Paris, 1979).

[24] See especially, Doeringer and Piore, Internal Labour Markets, M.J. Piore, 'Dualism as a Response to Flux and Uncertainty' and 'The Technological Foundations of Dualism and Discontinuity' in S. Berger and M.J. Piore, Dualism and Discontinuity in Industrial Societies, Cambridge, 1980, and ibid., Birds of Passage, (Cambridge, 1979), ch.2. See also Sabel, Industrial Conflict, ch.2, and 'Marginal Work and Marginal Workers in Industrial Society', Challenge, (March-April, 1979) for an elegant presentation of the theory.

within the economy which continually reproduce rather than extinguish archaic forms of production in the secondary sector.

Perhaps the most prominent among the methodological objections which have been raised against Braverman's model is his exclusion of workers' resistance from a causal role in the development of the division of labour.[25] While acknowledging that workers' struggles may reduce the pace of work or delay the introduction of new technology, Braverman explicitly argues that the objective development of the division of labour under capitalism (in his language the formation of 'class-in-itself') can be analysed without reference to workers' consciousness and organisation ('class-for-itself').[26] Here he broadly follows the line of argument in Capital in which workers' struggles primarily affect the rate and mode of exploitation (e.g. the campaign for a shorter working day produces a shift from absolute to relative surplus value) rather than modifying the division of labour in a substantive way.[27] Many critics have contended in opposition to this view that workers' organisations

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25 This objection has been raised by all of the reviewers cited in note 14 above, with the exception of Cutler, who is concerned to argue explicitly against an 'anthropology of labour' underlying Braverman's analysis. Zimbalist, Labour Process, pp.xii-xiv, seeks to defend Braverman against these charges by reiterating the claim that the market renders workers' resistance irrelevant in the long-run by eliminating high-cost production methods and by permitting capitalists to shift their investments away from areas of strong union organisation. See also Zimbalist's essay on printing in the same volume.

26 Braverman, Labour and Monopoly Capital, pp.26-30.

27 See Marx's discussion of the economic consequences of the Factory Acts in Capital Vol.I, ch.15, and of the relation between absolute and relative surplus value in chs.16-17: the assumption is always that capital is able to find an adequate solution to the pressures created by workers' resistance; the crisis tendencies identified do not stem essentially from this source. Freyssenet, Division capitaliste du travail, pp.106-114, argues in a parallel but more sophisticated fashion that it is the effectiveness of workers' resistance within the existing stage of the division of labour which precipitates the transition to the next stage.

and resistance may play an active role in determining the structure of the division of labour itself, though they have found it more difficult to specify the mechanisms whereby this occurs. Thus, for example, Friedman has suggested that strategic groups of workers in the core of the economy are able, in the context of the greater freedom from market constraint attendant on their employers' oligopoly power, to force the latter to grant them substantial autonomy and security on the job. Similarly, a number of writers have drawn attention to the contribution of trade unions to labour market segmentation through their role in the creation of seniority systems, restrictions on layoffs, and craft demarcation lines.[28]

A final methodological difficulty raised by critics of Labour and Monopoly Capital can be traced directly to its underlying evolutionary assumptions. It remains ambiguous throughout the work whether its true subject is capitalism in general or 20th century America in particular: all the evidence is drawn from American history but is used essentially to illustrate what are presented as general tendencies of capitalist development. Not only does such an account represent a partial and selective reading of American experience, as Palmer and others have suggested,[29] but it also reflects a more basic confusion between theoretical and historical modes of analysis. Braverman proceeds as if the trajectory of American social and economic development can be read off from general tendencies rooted in the logic of capitalism itself, so that the pattern

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[28] Friedman, Industry and Labour; Rubery, 'Structured Labour Markets', Piore, 'Dualism', and ibid., Birds of Passage, ch.2.

[29] B. Palmer, 'Class, Conception, and Control: The Thrust for Efficiency, Managerial Views of Labour and the Working Class Rebellion, 1903-22', Review of Radical Political Economics, 7(2) (1975); M. Davis, 'The Stop-Watch and the Wooden Shoe: Scientific Management and the Industrial Workers of the World', Radical America, (Jan-Feb 1975); Stark, 'Class Structure', pp.55-82. Montgomery's work has, of course, provided the principal source of objections to Braverman's reading of late 19th and early 20th century American history.

need only be illustrated rather than analysed in its own right. In a sense this objection follows from the preceding ones: if there is no single evolutionary tendency within the division of labour itself, and if particular industrial and market structures, along with workers' struggles, fundamentally condition the introduction of new techniques, then clearly analyses of the development of the division of labour must be empirical and historical as much as abstract and theoretical. And as we suggested at the outset, these strictures apply not only to Marxist analyses, but to all theories which postulate a unilinear evolutionary model for the division of labour.

A number of conclusions follow from our discussion of the deskilling and labour market segmentation debates. The identification of broad tendencies operating at the level of the economy as a whole leaves indeterminate their impact on the division of labour within particular industries and the position within them of individual occupational groups. Technical and organisational innovation create a diverse and shifting set of positions within the division of labour which do not cluster around a single tendential pole, and the precise lines of demarcation between the different positions by nature contain a significant arbitrary element. How the set of necessary tasks created by technology are combined into jobs and allocated among competing social groups is a problem that does not readily lend itself to a priori theoretical analysis. We can identify in advance some of the forces which will condition the outcome in particular cases - notably the structure of product markets and of the pre-existing division of labour - but the way these structures will combine in practice with the struggles of organised groups of workers and employers is properly the subject of empirical and historical analyses It follows not only that theoretical analyses cannot substitute themselves for

empirical and historical studies of particular cases, but more strongly that the latter, when properly informed by theoretical considerations, may shed fundamental light on the process whereby the structure of the division of labour is determined. But before proceeding to outline the empirical study of skilled workers and the division of labour which will occupy us in the body of this thesis, it will be best to consider some problems raised by the concept of skill itself.

## Skilled Workers and Craft Regulation

In the preceding discussion of the division of labour we have employed the concept of skill as if it corresponded unproblematically to an identifiable set of technical capacities. Yet its definition raises issues stemming directly from the interpenetration of technology and social relations in the division of labour itself. Skill can, of course, be loosely defined as that combination of knowledge about production and manual dexterity sufficient to enable a worker to perform a given task, and we have distinguished between workers possessing general skills based on an abstract (if only implicit) understanding of the principles of a given technology, and those who have instead accumulated a body of particular expertise confined to the workings of a single factory or set of machines. Such a technical definition of skill, however, specifies neither that the workers who perform a task are the only ones who could do so, nor the relation between those workers and others who actually or potentially could replace them. This social dimension of skill, the fact that technical capabilities are associated with socially defined groups whose exclusive claims to them are often contested both by management and by other groups of workers, is equally central to its significance for the division of labour.

The duality in the concept of skill, rooted in the dual character of the division of labour itself, has given rise to two equally one-sided interpretations The first is the technical definition in which skill is seen simply as the intellectual and physical capacity to perform a particular task. Such a definition underlies the whole body of literature which treats the history of the division of labour as a function of the history of technology, so that the rate and pattern of industrial development depends on the abilities

of inventors and entrepreneurs to devise solutions to technical problems and to adapt these to the requirements of the market.[30] This perspective, together with the technical definition of skill which underlies it, is inadequate because its failure to understand the embeddedness of technology in a set of social relations affords it no means of explaining why a group of workers should retain its position in the division of labour once there exist technical possibilities for their displacement.[31]

The second definition, developed in reaction against the first, tends to treat skill simply as an aspect of the social relations of the workplace. In the more extreme expressions of this perspective, skill appears essentially as a credential, a weapon used by a group of workers to defend its corporate interests against management and against other workers. This is, for example the position adopted by Turner in his analysis of trade unionism in the British cotton textiles industry:[32]

> From the viewpoint of trade union development, at least, workers are thus equally 'skilled' or 'unskilled' according to whether entry to their occupation is deliberately restricted, and not in the first place according to the nature of the occupation itself.

More recently, Parkin has elevated the struggles of skilled workers to defend their position in the division of labour against the encroachments of management and other workers alike to the rank of a basic principle of stratification

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[30] Perhaps the most distinguished example of this strand of the historiography is D.S. Landes, The Unbound Prometheus, (Cambridge, 1972).

[31] A good critique of the technical conception of skill, focused on the ergonomic and job evaluation literature, appears in P. Sadler, 'Sociological Aspects of Skill', British Journal of Industrial Relations 8(1) (1970), which treats the capture of mechanical typesetting by British compositors as a central case in point.

[32] H.A. Turner, Trade Union Growth, Structure and Policy, (1962), p.114 and Section III for the overall argument.

under the name 'dual closure'.[33] This second position, though more fruitful than the first, has the evident disadvantage of failing to explain why any group of workers cannot in principle claim a monopoly over any task, and runs up against the objection, founded both on the theoretical and empirical studies discussed in the previous section and on the experience of everyday life, that the division of labour has a definite structure requiring real skills and training for the performance of certain tasks even if the question of who will have access to them remains open.

Some of the dangers implicit in the purely social definition of skill can be illustrated by the divisions within the ranks of those who share this basic assumption. While most commentators stressing the arbitrary character of demarcation lines based on skill have called attention to the role of workers' struggles and organisations in their creation, others have moved on to the denial of real skill differences among workers, and thence to the claim that observable differences between groups of workers are in fact the product of employers' conscious strategies to divide the labour force. Such an assertion can be found in its baldest form in Foster's claim that the objective skill content had been removed from most industrial jobs in Britain by the middle of the 19th-century, so that skilled workers such as engineers should properly be viewed as "pace-makers" whose privileged position in the workshop flowed from their willingness "to implement technically phrased instructions from above" and to supervise other workers.[34] Similarly, in the work of radical

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[33] F. Parkin, 'Strategies of Social Closure in Class Formation' in ibid., (ed.), The Social Analysis of Class Structure (1974), and ibid., Marxist Class Theory: A Bourgeois Critique (1979), especially ch.6.

[34] Foster, Class Struggle, pp.224, 237-38.

American economists such as Stone and Gordon, the job ladders within American plants are seen as the result of management's efforts to create hierarchical divisions among workers rather than a reflection either of real skill differences between jobs or of workers' own demands.[35] Quite apart from their empirical adequacy as an account of the position of skilled workers in mid-19th century Britain or of their semi-skilled counterparts in 20th century America - both of which have been effectively criticised - such conceptions of skill divisions as arbitrary creations from above obscure the real bargaining power of these workers and the persistent conflicts which arise between themselves and management over the defence of their prerogatives.[36] The value of an emphasis on the social construction of skill lies precisely in the fact that it opens up the question of what forces determine the position of different groups in the division of labour, but an over-rigid and dogmatic assertion of the non-existence of real skills threatens to foreclose just this question.

Our own view is rather that the social and technical aspects of skill are analytically distinct, without being empirically separable or reducible to one another. This means that any statement about the division of labour

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35 K. Stone, 'The Origins of Job Structures in the Steel Industry', Review of Radical Political Economics 6(2) (1974); D. Gordon, Theories of Poverty and Unemployment, (Lexington, Mass., 1972); R. Edwards, M. Reich, and D. Gordon, (eds.), Labour Market Segmentation, (Lexington, Mass., 1973); and R. Edwards, Contested Terrain, (New York, 1979), especially chs.4, 7, and 8.

36 Foster's position has been criticised by J. Field, 'British Historians and the Concept of the Labour Aristocracy', Radical History Review 19 (1978-79); see also below pp.41-50. The radical economists' account of the transformation of the steel industry has been convincingly challenged by B. Elbaum and F. Wilkinson, 'Industrial Relations and Uneven Development: A Comparative Study of the British and American Steel Industries', Cambridge Journal of Economics 3(3) (1979). Their general position is refuted in Sabel, Industrial Conflict, ch.2, pp.38-46, and Piore, 'Dualism' and 'Technological Foundations'.

is necessarily a statement about the relations between employers, workers, and machines rather than between two of these terms alone. Thus a particular form of the division of labour is not simply a combination of passive factors of production by the entrepreneur to produce a given commodity, but also involves a set of social relations among people whose subjective qualities and conception of themselves are as integral to the operation of that form of production as are their technical capabilities.[37] To put the point more simply, the subjective attributes of the labour force have an objectivity for the employer, and may figure explicitly in the latter's strategic calculations, as where special efforts are made to recruit workers with distinct social orientations, whether women, peasants, or indeed skilled craftsmen; these subjective qualities of the labour force may equally become constraints on capital accumulation.

At the same time, neither workers nor their employers are free to reshape the division of labour in their own image. Technology and market structures act as constraints which rule out certain ways of organising production without determining the precise shape of the division of labour that will be adopted. The compatibility of particular technologies with different forms of the division of labour is born out most clearly by a recent study of 'twin' French and German factories making the same products with similar technologies. To be sure, certain common principles of organisation emerged

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[37] For a recognition of this point by a sophisticated economic historian concerned essentially with the relationship between market forces, entrepreneurship, and technical change, see Landes, Unbound Prometheus, p.317: "...reorganisation of work entailed reorganisation of labour: the relationship of the men to one another and to their employers were implicit in the mode of production; technical and social patterns reinforced each other ... Labour is not a factor like others. It is active where equipment and material are passive. It has a mind of its own: it resists as well as responds."

from these studies: both French and German firms found it necessary for example to distinguish in some way between skilled and unskilled workers, though they drew the line between the two differently. But the divergences between the two countries in such matters as overall skill levels, lines of promotion, intensity of supervision, layers of bureaucratic hierarchy, and range of wage differentials were so substantial and systematic that the authors of the study were led to postulate an effet societal to account for them.[38]

This argument is not meant to deny the unquestionable fact that lower-cost techniques of production will in the long-run tend to drive out higher-cost techniques, at least where there is a stable demand for the product. But competition of this kind acts in a relatively crude and undifferentiated manner, eliminating certain firms or sectors (often very slowly) without necessarily compelling all survivors to adopt a single method of production. In many cases, moreover, inter-capitalist competition may impede collective action and therefore undermine employers' ability to dislodge strategic groups of workers from their position in the division of labour, rather than intensify the pressures to introduce new techniques and raise productivity, as in the standard Marxian and neo-classical models.[39] We have already noted such

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[38] M. Maurice, and F. Sellier, 'A Societal Analysis of Industrial Relations', British Journal of Industrial Relations 17(3) (1979), which is an abridged version of a longer article entitled 'Production de la hiérarchie dans l'entreprise: recherche d'un effet sociétal. Comparaison France - Allemagne', Reuve Francaise de Sociologie, (1979). See also M. Brossard and M. Maurice 'Existe-t-il un modele universel des structures d'organisation?', Sociologie du Travail 4/1974. This study is reanalysed by Sabel, Industrial Conflict, ch.1, pp.48-53, and ibid., 'French and German Factories', (unpublished paper, M.I.T., 1979).

[39] For a more developed version of this argument, see W. Lazonick, F. Wilkinson, and J. Zeitlin, 'The Labour Process, Market Structure and Marxian Theory', Cambridge Journal of Economics 3(3) (1979).

'perverse' effects of competition in the case of the British mule-spinners, and we will have occasion to call attention to their importance in the struggle over the introduction of composing machines in printing as well.

Thus while technology and market structures impose definite constraints on the division of labour, their effect is deeply equivocal and leaves a significant amount of indeterminacy as to the actual arrangements prevailing on the shop floor. Hence the particular division of labour adopted will depend in large measure on the outcome of conflicts between workers and employers. These conflicts, together with those factors conditioning the relative balance of forces between workers and employers, will form the central focus of this thesis.

These theoretical considerations can best be amplified in relation to the category of workers with which we will be centrally concerned in this thesis, skilled craftsmen. As we argued above, the development of the division of labour in the advanced sector of the economy creates a continual demand for a diminishing number of workers with general skills even as it creates a larger number of jobs which require a lesser amount of training. This process of polarisation affects the existing ranks of craftsmen along with the rest of the working class: among those workers possessing general skills within the existing division of labour, some will obtain opportunities to upgrade and enhance their skills in the new phase by adding the principles of the new technology to their knowledge, while others will find their skills devalued and confined to a particular body of machines for which they must compete with workers advancing up a ladder of intermediate skills within the plant. As we shall see below, this is precisely what happened in engineering at the end of the 19th century: the

introduction of new machine tools and methods of workshop organisation, to the extent that this occurred, tended to enhance the skills of some engineering craftsmen, who became for example toolmakers, while the majority of the fitters and turners who had dominated the industry in the second half of the 19th century found themselves competing against non-apprenticed 'handymen' for the right to work new machines which did not demand the full range of their skills. In printing, by contrast, hand compositors were able to minimise the devaluation of their skills by capturing exclusive rights to work the new typesetting machinery and strictly regulating the terms of its competition with hand work.

The willingness of employers to invest in the capital-intensive technology necessary to restructure skill requirements in this way itself depends on the nature of their product and of the demand for it. The product itself must be amenable to standardisation, and investment in capital-intensive technology will be further limited, as Piore and others have argued, by the extent of a stable and predictable demand for the product. Where an unstable demand for a variable product prevails, as in building, shipbuilding, and newspaper printing, employers will seek to minimise the use of expensive capital equipment tailored to a standardised process, and will therefore rely to a greater extent on the adaptability of a skilled labour force to a wide range of tasks. Even where a stable demand exists for a standardised product, as in the case of motor cars and other engineering products, employers will seek to separate out the stable from the unstable component of demand, investing in advanced technology to produce for that segment of demand which persists through the trough of the business cycle, and sub-contracting the

remainder or producing it themselves with older techniques depending to a larger extent on a combination of craft skills and unskilled labour.[40]

Beyond the nature of demand, the existing structure of the enterprise may also constrain the ability of employers to transform the division of labour. As we shall see in detail in the case of British engineering, the small size of firms and their commitment to existing machinery and products which remain profitable in the medium-term will discourage entrepreneurs from risky investments in new capital equipment, despite the onset of foreign competition. While their failure to adapt to the long-run requirements of the world market by shifting to new products and processes would ultimately lead to the decline of the older sectors of the British engineering industry, this process was strikingly slow and gradual, leaving considerable space for firms continuing to produce according to older and more labour-intensive methods.

If there are a range of objective technical and economic forces working to sustain a demand for craft skills, these are powerfully reinforced by the

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[40] The relationship between the nature of the product and the organisation of production is well set out in A.L. Stinchcombe, 'Bureaucratic and Craft Administration of Production', Administrative Science Quarterly 4(2) (1959); the basic argument on the relationship between stability of demand and segmentation appears in the works by Piore cited in note 24 above. The precise relations between primary and secondary sectors and the strategies employed by primary sector firms to unload the burden of adjustment to fluctuations onto the secondary sector are explored in Sabel, Industrial Conflict, ch.2, Piore, 'Dualism', and Friedman, Industry and Labour, chs.8, 15-16. The connection between instability of demand and the persistance of craft labour is examined for building by Stincombe, 'Craft and Bureaucratic Administration', for shipbuilding by R.K. Brown, P. Brannen, J.M. Cousins, and M.L. Samphier, 'The Contours of Solidarity: Social Stratification and Industrial Relations in Shipbuilding', British Journal of Industrial Relations, 10(1) (1972), especially p.16, and S. Pollard and P. Robertson, The British Shipbuilding Industry, 1870-1914, (Cambridge, Mass., 1979); for printing see below, chs. 1-2.

efforts of skilled workers themselves. There is abundant evidence that groups of skilled workers across a range of industrial economies conceive of themselves as a community of men united by the possession of skills and practical knowledge indispensible to production. "...Because they define themselves in this way," as Sabel argues, "they frequently succeed in forcing their employers to organize work as if they did possess such knowledge ..."[41]

> They use the collective strength afforded by their market position to force the firm to institutionalise the existing relation between craftsmen and the firm as a relation, not between productive agents, but between social groups: the firm is obliged to concede to craftsmen as a particular political entity the right to perpetuate certain historically defined privileges with respect to both management and fellow workers.

Two components of skilled workers' defence of their position in the division of labour require special emphasis here: the centrality of their self-conception as craftsmen and the importance of trade union organisation in determining their strategies and alliances in relation both to their employers and to other groups of workers. In referring to skilled workers as 'craftsmen', we call attention to the importance of their conception of themselves, their implicit world-view, for their behaviour in the workplace and for the development of the division of labour, without endorsing their claim to possess skills comparable to those of the handicraft artisan capable of producing a piece of work from start to finish under his own direction. The more successful skilled workers' struggles to capture a privileged place for themselves in the division of labour as a corporate

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[41] C. Sabel, 'Industrial Conflict and the Sociology of the Labour Market', (unpublished paper, Harvard University, 1976), pp.14-15; cf., also D. Segrestin, 'Du syndicalisme de metier au syndicalisme de classe: pour une sociologie de la CGT', Sociologie du Travail, 2/1975, especially p.165.

group, the more likely it is that they will spend some of their time on routine tasks which could be done by other workers, and that certain of their number will find themselves largely confined to work which does not require the full range of their skills. There may thus emerge significant variations in the actual skills of members of the same craft, as well as between crafts, and the level of technical skill provides no secure index of an individual or group's position in the division of labour.

But skilled workers' conception of themselves as craftsmen is not, of course, immune to changes in their objective position. When a larger and larger proportion of craftsmen's work consists of routine tasks, management will become increasingly tempted to encroach on their prerogatives in the workplace and to introduce cheaper and more tractable labour. Insofar as these measures are successful, they will tend to undermine skilled workers' craft identity and force them to reconsider their relation both to their employers and to other groups of workers.[42]

This last point highlights a central ambiguity in skilled workers' conception of themselves: the tension between the defence of their autonomy against management and of their exclusive position against other groups of

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[42] The tenacity of skilled workers' craft identity in the face of changes in their objective position is illustrated by a German study cited by Sabel, Industrial Conflict, ch.3, pp.24-27, which found in certain plants that craftsmen whose work no longer requires the full range of their skills nonetheless continue to think of themselves as craftsmen and take special pleasure in their occasional opportunities to perform (unremunerated) extra work requiring greater skill as a reaffirmation of their craft identity.

workers. As we have seen, the essential principle underlying craft organisation is the attempt by a corporate group to secure for itself a timeless place in the division of labour independent of the market value of their skills. As a result, skilled workers' demands take the form of a defence of an idealised model of the existing organisation of work against innovation, and therefore of a defence of their prerogatives against encroachments by other groups of workers: strikes over wage differentials or over demarcation lines are typical examples of the claims which routinely pit craftsmen against the less skilled and members of other crafts. At the same time, the true foundation of craftsmen's defence of their sectional position lies in their opposition to management, which they view as the principle source of threats to their autonomy and control at work.[43] Hence while skilled workers in certain circumstances may assume supervisory functions, as did British mule-spinners in the second half of the 19th century, or even act as sub-contractors, as did iron and steel craftsmen in both Britain and the US in the same period, there is a continual tendency for conflict to erupt between craftsmen and their employers over the organisation of production, as the subsequent history of both these groups confirms.[44] In certain cases, where craftsmen feel themselves to be fighting a losing battle against their employers, they may turn to an alliance, temporary or permanent, with other

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[43] A similar analysis of the contradictory structure of craft consciousness can be found in Hinton, Shop Stewards, ch.2, and in Sabel, Industrial Conflict, ch.4, pp.52-72.

[44] On cotton-spinning, see Lazonick, 'Industrial Relations'; Turner, Trade Union Growth; and J. White, The Limits of Trade Union Militancy, (Westport, Conn., 1978); on iron and steel see Elbaum and Wilkinson, 'Industrial Relations', and F. Wilkinson, 'Collective Bargaining in Steel in the 1920's, in A. Briggs and J. Saville, (eds.), Essays in Labour History, 1918-39 (1977).

grades of workers, in which their traditions of opposition to management and the anti-capitalist implications of their commitment to autonomy and control at work may lead them in extremely radical directions. Thus British cabinet makers and boot and shoe workers in the late 19th century were converted to an alliance with the less skilled, as were a section of skilled engineers during the First World War, American electrical craftsmen during the 1930s, and more recently northern Italian skilled workers during the strike wave of the late 1960s.[45]

In recent years, the central role of trade unions in skilled workers' struggles to defend their position within the division of labour has tended to become obscured by the reaction against the institutional biases of earlier labour historians beginning with the Webbs. Thus more recent studies have tended to stress the primacy, both analytical and chronological, of workplace activity over trade union organisation, emphasising the opposition between rank and file and trade union officials.[46] While the tensions between rank

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45 On cabinet makers, see D. Blankenhorn, Cabinet Makers in Victorian Britain, (Warwick M.A. Thesis, 1978); on boot and shoe makers, G. Thorn, Statement Aristocrats and Sweated Militants, (Warwick M.A. Thesis, 1974); on engineers, Hinton, Shop Stewards; on American electrical workers, R. Schatz, 'Union Pioneers: The Founders of Local Unions at Westinghouse and General Electric, 1933-37', Journal of American History 66(3) (1979); on Italy in the 1960s, see the factory monographs edited by A. Pizzorno, Lotte operaie e sindicato, 1968-72, (6 vols., Bologna, 1974-78), and Sabel, Industrial Conflict, ch.4. The general problem of relations between skilled and unskilled workers in unionisation is discussed in relation to the British car industry in my 'The Emergence of Shop Steward Organisation and Job Control in the British Car Industry', forthcoming in History Workshop Journal 10 (1980).

46 Among the major studies which mark the 'rank-and-filist' reaction against institutional labour history, see Hinton, Shop Stewards; K. Burgess, The Origins of British Industrial Relations (1975); R. Samuel, (ed.), Miners, Quarrymen and Saltworkers, (1977); G. Brown, Sabotage (Nottingham, 1977); and R. Price, Masters, Unions and Men, (Cambridge, 1980). Montgomery's 'Workers' Control of Machine Production in 19th Century America' in ibid., Workers' Control, likewise sees trade union work rules as evolving out of a prior tradition of autonomous workshop organisation, though he allots a more positive role to wider union structures than do many rank-and-filist historians. The reaction against the Webbs' evolutionary vision of trade unionism and collective bargaining is discussed in greater detail in relation to engineering and printing in ch.II, see pp.69-71.

and file workers and the various levels of union organisation form a basic feature of industrial conflict, and receive close attention in this thesis, it is a fundamental error to locate craftsmen's struggles to control their work in a distinct tradition of 'autonomous regulation' separate from trade union organisation.[47] While workplace organisation may have preceded national unionism in certain trades such as building or printing, in others such as patternmaking, the very emergence of the occupation as a craft distinct from engineering was the result of the formation of a trade union. The lines of demarcation between different trades - which is to say the definitions of which tasks are to constitute a particular craft - are likewise normally constituted by trade union organisation.[48]

Skilled workers' defence of their autonomy and control at work has always, moreover, been closely bound up with the regulation of the wider labour market. Well before the onset of mechanisation, employers in many trades had developed innumerable methods of subverting the control of craftsmen over their work: as we shall see in chapter III, printing employers prior to the advent of composing machines sought to cheapen and intensify hand compositors' labour by introducing partially-trained men and women onto certain tasks, by multiplying the number of apprentices, by manipulating methods of payment, and by taking advantage of the underemployment created by seasonal and cyclical fluctuations in demand. The efforts of the printing unions to regulate the labour market by restricting the number of apprentices and by setting minimum conditions

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47 See especially Price, Masters, Unions, and Men, for this view.

48 These points are made forcefully by Reid, Shipbuilding, especially pp.220-221. On patternmakers, see ibid., pp.75-82 and below, pp.43-44, 122-25.

and rates of pay under which their members were permitted to work formed an integral part of the compositors' struggles to maintain their position in the workplace against encroachments by employers.

In characterising the methods used by skilled workers to defend their position in the division of labour, we have generally chosen to use the term 'craft regulation' in order to stress both their origins in workers' self-conception as craftsmen and the link between workplace organisation and wider trade union structures. This not merely a question of terminological conventions: the terms used by other students of the subject carry with them implicit theoretical assumptions. 'Workers' control', for example, suggests a direct passage from the limited and defensive aims of most craft struggles to a movement for an alternative mode of production; 'work control' or 'job control' obscures the specificity of the demands raised by workers who conceive of themselves as craftsmen; even 'craft control', the closest alternative, tends to fix the focus to firmly on the workplace alone.[49]

Perhaps the most important function performed by trade unions in struggles over the division of labour lies in their role as articulators of alliances between workgroups with divergent interests both inside and outside the union itself.[50] No trade or occupation is internally homogenous, and conflicts of

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[49] For 'workers' control', see Montgomery, Workers' Control; for 'work control', see Price, Masters, Unions, and Men; for 'craft control', see inter alia, Hinton, Shop Stewards, ch.2, and an earlier version of the arguments in this thesis, 'Craft Control and the Division of Labour: Engineers and Compositors in Britain, 1890-1930', Cambridge Journal of Economics 3(3) (1979). I have elsewhere used the term 'job control' to refer to those forms of control over workplace conditions which are not specific to craftsmen: see Zeitlin, 'Shop Steward Organisation and Job Control'.

[50] In developing this conception of the 'political' role of trade unions as articulators of strategies and alliances, I have been influenced by Reid, especially chs.7 and 10, and by Sabel, 'The Internal Politics of Trade Unions', in S. Berger, (ed.), Interest Groups in Western Europe, (forthcoming Cambridge University Press).

interest will always arise between different sections, whether based on the division of labour itself, the differential impact of technical change, or even the division between employed and unemployed. Trade unions and their leaders must therefore necessarily play a 'political' role in seeking to balance and satisfy the diverse interests of their members within the framework of common goals and a given organisational structure. The external counterpart of this internal political role arises in relation to other groups, whether of employers or other workers. The policies of trade unions as organisations will play an important role in determining which alliances prove possible between trades as well as within them, and of course in negotiating compromises between workers and employers. The extent of the discretion exercised by union leaders in these matters is in turn a political question depending on their relationship with the rank and file and local officials, and on the internal structure of the union itself. As we shall see, in both engineering and printing, the alliances between different groups of workers would play a central role in determining the outcome of struggles over the division of labour, as would the employers' own capacity for organised collective action.

## Comparative Method and Historical Explanation

In an essay on British gasworkers written some 25 years ago, Eric Hobsbawm called attention to the successful capture of new technology by skilled workers in late 19th century Britain, citing as examples the very groups which are the subject of this thesis, engineers and compositors:

> Labour-saving and labour-simplifying devices do not automatically dislodge key groups of workers from their strongholds. They do so only when such groups are unable to maintain their relative indispensibility (i.e. their bargaining strength) during the crucial transition period, and cannot therefore 'capture' the new devices for recognised unionism, the standard rate, and standard working conditions. Thus in the last decades of the 19th century printers almost everywhere, and to a lesser extent skilled engineers in Britain 'captured' mechanised typesetting and automatic machine tools, assimilating the new semi-skilled work to the old artisan status; American engineers failed to do so, and remained virtually without unions for some 30 years.[51]

But as Hobsbawm recognised, this line of argument immediately raises new questions: why are some groups of skilled workers more successful than others in maintaining (or even enhancing) their position in the division of labour in the face of pressures towards technical and organisational change?

Such a question readily lends itself to comparative treatment, and a systematic comparison of the experiences of several groups of skilled workers with major waves to technical innovation offers a potentially fruitful framework within which the forces determining the development of the division of labour can be empirically examined. A focus on the explanation of observed divergences in the experiences of different trades

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[51] Hobsbawm, Labouring Men, op. cit., pp.170-71.

should permit a more convincing relationship to be established between theory and empirical evidence than that prevailing in most of the existing literature, in which the use of empirical examples to illustrate conclusions deduced from a priori principles alternates with isolated case studies conducted against a backdrop of unexamined theoretical assumptions. At the same time, an emphasis on the struggles between skilled workers and their employers over the social consequences of technical change promises to shed particular light on the impact of industrial conflict on the division of labour, and on those forces which in turn condition the forms and outcome of such conflict itself.

The decision to focus the research on engineers and compositors in late 19th century Britain flowed from a combination of strategic choices and practical considerations. The choice of late 19th century, Britain, like that of skilled workers themselves, flowed from our concern with the relative success of workers' struggles and their impact on the division of labour. Where employers were more successful in sweeping aside constraints on their freedom of action in the workplace, and often in destroying union organisation itself, it is much more difficult both from a theoretical and empirical point of view to consider the impact of workers' resistance: unions which disappear from the workplace leave few sources on shopfloor conditions. Thus it is no accident that many of the theories which discount the importance of workers' struggles and organisations rely on evidence drawn primarily from the American experience.

It has long been evident, both to contemporaries and historians, that workers in Victorian and Edwardian Britain, both skilled and unskilled, exercised a greater influence on the organisation of production than their counterparts elsewhere, and that technical change and the growth of

productivity advanced less rapidly than in American and German industry during the same period, though there is little agreement on the connection between these phenomena.[52] This period, during which the predominance of Britain in the world economy first came to be challenged by American and European competition, was marked by intense conflict between workers and employers across a wide range of industries, much of it centred on the division of labour. New groups of workers and employers organised for the first time, while already organised groups expanded and reformed their existing associations. The attendent intensification of industrial conflict ultimately resulted in significant shifts in the relation between organised labour, the law, and the political system, drawing the state into the regulation of collective bargaining for the first time. It is no wonder, therefore, that this period has left abundant documentation from trade union, employer, government, and independent sources, so that a study of conflicts between skilled workers and employers over the division of labour in late 19th and early 20th century Britain will encounter both ample food for theoretical reflection and a wealth of empirical material.

As the quotation from Hobsbawm cited above indicates, the historiography pointed to the experience of engineers and compositors in late 19th century

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[52] See for example H.J. Habakkuk, American and British Technology in the 19th Century (Cambridge, 1962). Most of the recent debate on the performance of the Victorian economy has been dominated by the clash between pessimists, who generally argue that deteriorating entrepreneurship was responsible for British decline, and optimists, most of whom use econometric techniques to suggest that individual firms and industries performed about as well as could have been expected given objective constraints. The pessimist case is summarised in the essays collected in D.H. Aldcroft and H. Richardson, The British Economy, 1870-1939 (1968); the optimist position in D.N. McCloskey, 'Did Victorian Britain Fail?', Economic History Review, 2nd ser., 23(3) (1970), and ibid., and L. Sandberg, 'From Damnation to Redemption: Judgments on the Late Victorian Entrepreneur', Explorations in Economic History 9(1) (1971-2). For structural explanations of decline which stress the role of labour, see E.H. Phelps Brown and M. Browne, A Century of Pay (1968). esp. pp.174-195; and W.A. Lewis, Growth and Fluctuations, 1870-1913 (1978), especially chs.4-5.

Britain as a rich context within which to investigate the divergent abilities of skilled workers to defend their position in the division of labour in the face of technical change. At the same time, the secondary literature on each group, when considered in a comparative context, proved to contain unresolved puzzles that suggested the need for a closer analysis of their struggles over the reorganisation of the division of labour.

The capture of composing machines by hand compositors furnishes one of the clearest cases available of the successful defence of craft privilege despite mechanisation, and so suggested itself as a natural choice for a study of this kind. While historians of the typographical unions had noted the relatively unusual character of compositors' experience with mechanisation, they made little attempt to explain it in terms other than those of the moderate and prudent policies adopted by union leaders.[53] Here a comparative perspective raised immediate difficulties. As we shall see in the body of the thesis, the demands of the Amalgamated Society of Engineers (ASE) which touched off the 1897-8 lockout were far more moderate than those which printing employers accepted without a struggle, and there were significant differences in both the policies towards mechanisation pursued by the three regional typographical unions and in the influence exercised by the rank and file in their formulation. Hence a more structural account of the capture of composing machines by the typographical unions seemed very much in order.

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[53] The major works on the history of 19th century compositors include: E. Howe, (ed.) The London Compositor (1947); Howe and H.E. Waite, The London Society of Compositors: A Centennial History (1948); S.C. Gillespie, The Scottish Typographical Association, 1853 to 1952 (Glasgow, 1953); A.E. Musson, The Typographical Association, (Oxford, 1954); I.C. Cannon, The Social Situation of the Skilled Worker, (London Ph.D. Thesis, 1961); and J. Child, Industrial Relations in the British Printing Industry (1967), Musson most clearly attributes the compositors' capture of mechanised typesetting to their leaders' prudence and moderation, (T.A., p.249), but a similar emphasis can be discerned in Gillespie, STA pp.115-16, and Child, Industrial Relations, p.182.

The case of engineers and automatic machine tools proved in practice rather more ambiguous than that of the compositors, and the divergences between the experiences of the two groups forms a major theme of our treatment. Here too the existing secondary literature left a number of major questions unanswered. Skilled engineers had long figured in the historiography as archetypal examples of the secure and affluent labour aristocrats who were held to characterise the mid-Victorian labour movement, and whose prosperity was tied to the international predominance of British industry.[54] With the rise of American and German competition after 1890, British engineering employers sought to repair their position in world markets by introducing automatic machine tools and by reorganising the division of labour along more advanced lines. The efforts by skilled engineers to defend their craft position triggered off a major confrontation with the employers in 1897-8, in which the unions were defeated and forced to accept a regime of untrammeled managerial prerogative in the workshops.

While drawing attention to engineering as an important point of intersection between workers' struggles and the response of British industry to foreign competition, this account raised a number of further questions.[55] If the position of skilled engineers in the division of labour was so secure during the mid-Victorian period, why were they so easily defeated in 1897-8?

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[54] See Hobsbawm, 'The Labour Aristocracy'; Foster, Class Struggle; Gray Labour Aristocracy; and G. Crossick, An Artisan Elite in Victorian Britain (1978). Stedman Jones refers to engineering as the locus classicus of the labour aristocracy, 'Class Struggle', p.63.

[55] This account is, of course, a radically foreshortened composite of the major components of the historiography, which include: J.B. Jefferys, The Story of the Engineers, 1800-1945 (1946); B.M. Weekes, The Amalgamated Society of Engineers, 1880-1914, (Warwick Ph.D. Thesis, 1970); Burgess, Industrial Relations; and Hinton, Shop Stewards. Of these Burgess's account most closely conforms to the sketch given here.

If the employers were so conclusively victorious in 1898, why did the share of British engineering in world markets continue to decline? And why, by the same token did studies of the industrial unrest of the First World War suggest that skilled engineers still retained a central place in the division of labour and continued to exercise a significant measure of control on the shop floor?[56] These questions likewise pointed to the need for a re-examination of struggles over the reorganisation of the division of labour in the industry.

As an exercise in systematic comparative analysis, the project undertaken in this thesis has certain disadvantages. We had originally intended to compare engineers and compositors with a third group of British workers from the same period, boot and shoe makers, whose experience more closely approximated to the predictions of the deskilling model. Like their counterparts in engineering British boot and shoe employers in the 1890s found themselves faced with serious competition from more advanced American manufacturers, and responded by introducing new machinery and attacking union restraints on their freedom of action in the workplace. But in contrast to engineering, boot and shoe employers appear to have been able to capitalise relatively rapidly on their victory over the union in 1895 to develop integrated factories using machinery manned by semi-skilled workers, and thereby not only to repel the American challenge in the home market but to regain lost ground abroad.[57]

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[56] See especially Hinton, Shop Stewards, ch.2.

[57] R.A. Church, 'The Effect of the American Export Invasion on the British Boot and Shoe Industry, 1885-1914', Journal of Economic History 28(2) (1969); P. Head, 'Boots and Shoes' in D.H. Aldcroft, (ed.), The Development of British Industry and Foreign Competition, 1875-1914 (Glasgow, 1969); A. Fox, A History of the National Union of Boot and Shoe Workers, 1874-1957, (Oxford, 1957), pp.129-358.

The inclusion of a third case offering a more polar contrast with printing might conceivably have facilitated more confident generalisations about the explanatory weight to be given to such factors as foreign competition or divisions within the labour force, as well as a more balanced treatment of the ambiguities of the outcome in engineering.

In the event, however, this research design was abandoned for a combination of practical and methodological reasons. Despite the existence of a rich secondary literature on printing and engineering, new questions required new primary research, and important aspects of our problem, such as the introduction of composing machines in London, had received only cursory historical attention. Not only were boot and shoe workers the least well studied of the three groups, but such was the diversity of experience in the various regional centres that a comprehensive synthetic treatment would, we felt, have to await the conclusion of a number of detailed local studies currently in progress.[58] At the same time, the periodisation of developments in boot and shoe making differed significantly from those in printing and engineering: while in the latter cases the conflicts of the 1890s marked a challenge to the relatively well-established structure of the division of labour (albeit of different vintages), in the former the pattern of change could better be represented as a series of connected but discontinuous stages in the displacement of hand labour between 1860 and 1900.

This last consideration highlights the active influence of the choice of cases on the results of comparative analysis. Any comparison necessarily

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[58] Theses in progress by G. Thorn on London at Warwick and by K. Brooker on Northampton at Hull.

involves an arbitrary component, however carefully controlled, and the introduction of an additional case into the analysis will normally cast a new light on the importance of particular causal factors. If we had included boot and shoe workers in the analysis, such factors as the periodisation of technical development and regional variations in labour market structure might have assumed a greater importance among our conclusions. Similarly, a comparison of British engineers and compositors with their counterparts in another country would have enabled us to control more fully for the effects of industrial structure and to give greater weight to the role of external cultural and political factors in the development of the division of labour.

But international comparisons are not without their own pitfalls, not the least the tendency of even their most sophisticated practitioners to place the main explanatory weight for observable divergences on global characteristics of the national contexts themselves.[59] Moreover, even the most rigorous exponents of systematic comparison as an analogue to multi-variate analysis for testing causal hypotheses "where there are too many variables and not enough cases" are compelled to acknowledge in practice that their conclusions have a "suggestive" rather than a definitive character.[60] This is not, of course, to argue that any comparison is as useful and powerful as the next, but rather to suggest that even the best constructed comparative

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59 For examples of this tendency, see Maurice, et al., 'Societal Analysis'; Gallie, New Working Class; and R. Dore, British Factory, Japanese Factory: The Origins of National Diversity in Industrial Relations (1973).

60 T. Skocpol and M. Somers, 'The Uses of Comparative History in Macrosocial Inquiry', Comparative Studies in Society and History, 22(1) (1980). Skocpol, States and Social Revolutions (Cambridge, 1979), is a rigorous and exciting attempt to apply this version of comparative method to the causes and outcomes of the French, Russian, and Chinese revolutions.

framework does not allow us to eliminate those elements of contingency which are integral to the analysis and interpretation of empirical cases.

By undertaking a comparison of two groups of workers with similar world views against the background of a common political context, we hope to explore the role of certain structural factors in the outcome of conflicts over the reorganisation of the division of labour, without claiming that these exhaust the causal forces at work. Our choice of a historical and in part narrative mode of exposition reflects a recognition of this contingent and provisional character of comparative analysis. At the same time, however, it flows from our understanding of the division of labour as the product of a dialectic between structures and struggles, in which the strategies and alliances forged by organised groups of workers and employers play a fundamental role. For it is above all in the context of a historical mode of presentation that the roles of the conscious (and unconscious) choices of human actors can be balanced against those of structural and conjunctural forces to provide an account of historical processes which avoids the pitfalls of determinism without eschewing the demands of explanation.

The body of the thesis is divided into three main parts. The first is devoted to the relations between workers and employers in the two industries during the period prior to mechanisation, and is intended to highlight the structural features which conditioned both the forms and outcomes of the conflicts over the introduction of new technology in each case. Accordingly,

the characteristics of industrial structure, the division of labour, and trade union and employer organisation are analysed for both engineering and printing. The section concludes with an account of the central areas of conflict between skilled workers and their employers in the pre-mechanisation period, which it is argued were of cardinal importance in determining the initial reactions of both sides to the opportunities and dangers opened up by technical change. The second section shifts from a primarily structural and synchronic mode of analysis to a more narrative account of the conflicts over technical and organisational change in the two industries during the 1890s, together with the extent of their resolution in the years up to 1914. Part three returns to the structural mode to examine the long-term outcomes of these struggles for the position of skilled workers in the division of labour, taking account of developments during the interwar years. The concluding chapter attempts to identify the central structural forces determining the differences in the outcomes in the two cases, and to balance their importance against that of the strategic choices of the historical actors.

# PART I

## INDUSTRIAL STRUCTURE AND INDUSTRIAL CONFLICT, 1850-1890

# Chapter I

## Industrial Structure and Market Position

The structure of the engineering and printing industries, together with their patterns of development during the second half of the 19th century, forms an indispensible point of departure for an understanding of the pressures towards the reorganisation of the division of labour which would make themselves felt so strongly in each industry during the 1890s. The engineering industry - itself a cluster of related industries or sectors, united, in the words of the Balfour Committee, "...by the fact that the basic metal working processes underlying them are fundamentally the same"[1] - occupied a central place in the Victorian economy in several respects. As a capital goods industry supplying technology essential to the transformation of production in other sectors, engineering played a critical role in the growth of the economy as a whole. At the same time, employing nearly one million men in its various branches in 1907 and responsible for 14.6% of industrial production in the same year, a larger proportion than any other sector apart from coal[2], the engineering industry was of fundamental economic importance in its own right. (See table 1). Finally, as a major 19th century export industry (along with coal, iron and steel, textiles, and ships), engineering contributed to and benefitted from that orientation towards foreign markets and international trade which constituted the defining feature of the Victorian economy; in fact, machinery

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[1] Balfour Committee on Industry and Trade, Survey of the Metal Industries, (1928), p.130.

[2] Lewis, Growth and Fluctuations, p.252.

exports increased more than those of any principal commodity group between 1850 and 1890.[3] Exports of machinery increased as a proportion of the total value of British exports from 1% in 1850 to 6% in 1891; by 1907 they comprised half of total engineering production.[4]

Printing, of course, was of much lesser weight in absolute terms - Lewis estimates it at 4.7% of industrial production in 1907[5]- but it occupied a strategic place in the Victorian economy in other respects. Leaving aside its cultural and political role (perhaps greater during the second half of the 19th century than at any other time), printed matter, especially newspapers, was at once one of the first mass consumption goods and an essential adjunct to the sale of other products because of its role in advertising and publicity.[6]

## Growth

The second half of the 19th century was a period of exceptional growth for the printing industry. As Alan Lee has shown, the repeal of the 'Taxes on Knowledge' (advertisement duty, 1853; newspaper stamp 1855; paper duty 1861), together with the extension of popular literacy led to a tremendous growth in

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[3] Burgess, Industrial Relations, p.25.

[4] Jefferys, Engineers, pp.52, 118.

[5] Lewis, Growth and Fluctuations, p.252.

[6] For an excellent account of the changing cultural and political role of the newspaper press during this period, see A.J. Lee, The Origins of the Popular Press, 1855-1914 (1976), and G. Boyce, J. Curran, and P. Wingate (eds.), Newspaper History: From the 17th Century to the Present Day (1978).

the volume of printed material, particularly the periodical press and above all daily and weekly newspapers.[7] In the absence of any full-scale economic history of the industry and of reliable series on output, its growth is difficult to measure, but various indirect indices are available. The most recent series of industrial production, based on the domestic use of writing paper, shows a sixfold expansion between 1852 and 1890, while Coleman's figures for the total volume of paper production run from less than 100,000 tons in 1850 to 475,000 in 1890.[8] Clearly, this expansion was concentrated in the newspaper press, though this is difficult to prove in the absence of reliable figures on circulations;[9] one indication, however, is the fact that employment among bookbinders grew only half as fast as total male printing employment, which tripled between 1851 and 1891. (See Table 2B).

Engineering, by contrast, had enjoyed its period of most rapid growth between 1835 and 1850 under the influence of demand from the textile industry and the railroads. After 1850, British dominance in world markets stabilised production, leading to a pattern of steady export-dependent growth without major shifts in the capital-intensiveness of investment.[10] Lewis's indices, based on the net use of iron and steel by domestic manufacturers (excluding

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[7] Lee, Popular Press; see also ibid., 'The Structure, Ownership, and Control of the Press, 1855-1914', in Boyce et al. (eds.), Newspaper History; and A.E. Musson, 'The Newspaper Industry in the Industrial Revolution', Economic History Review, 2nd ser., 10(3) (1958).

[8] Lewis, Growth and Fluctuations, pp.248-49, 256; D.C. Coleman, 'Industrial Growth and Industrial Revolutions', Economica (Feb. 1956), fig.2, p.8.

[9] For various isolated figures, see Lee, Popular Press, p.292, and ibid., 'Structure...of the Press', pp.122-23.

[10] Burgess, Industrial Relations, pp.1-4; see also his 'Technological Change and the 1852 Lockout in the British Engineering Industry', International Review of Social History 14(1) (1969).

ships' plates and rails), suggest that engineering output quadrupled between 1852 and 1890.[11]

## Fluctuations

The different positions of these two industries in the Victorian economy naturally resulted in different experiences of fluctuations, both cyclical and seasonal. As a capital goods industry, engineering experienced the effects of the business cycle particularly sharply, since manufacturers in other industries put off ordering new machines until the boom was well underway while cutting back such expensive investments as soon as the economy turned the corner into recession. This is the pattern identified by Floud for the machine tool sector, in many respects the core of engineering as a whole.[12] The intensity of fluctuations, of course, varied by sector: marine engineering shared in the enormous fluctuations in output and employment of shipbuilding, while textile engineering, linked to the smoother demand curve of the textile producers, was more insulated from such dramatic peaks and slumps.[13]

These fluctuations in output, dictated by the short, sharp character of the trade cycle in the industry, naturally had direct effects on employment and thus on the nature of relations between workers and employers. In 1879, for example, the trough of the mid-Victorian depression, 15% of engineering and

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[11] Lewis, Growth and Fluctuations, pp.248-49, 254.

[12] R. Floud, The British Machine Tool Industry, 1850-1914 (Cambridge, 1976), pp.61-67.

[13] On fluctuations in shipbuilding, see Pollard and Robertson, Shipbuilding, ch.2, and Reid, Shipbuilding, pt.I.

shipbuilding trade unionists were unemployed, while unemployment among the Boilermakers, the most important of the shipbuilding unions, fluctuated from 21.5% in 1887 to 2.5% in 1889.[14] But while engineering's status as a capital goods industry exposed it to sharp cyclical fluctuations in demand, it also insulated the industry from the seasonal cycles that bedevilled the consumer goods industries, furnishing the major source of casual labour.[15]

The pattern of cyclical and seasonal fluctuations in printing was just the reverse of that in engineering. While the output of printed matter depended to a large extent on the overall level of economic activity, (especially in relation to advertisements in newspapers and handbills in jobbing printing), the overall trend was sharply upward. Employment therefore fluctuated much less sharply over the trade cycle in printing than in engineering, ranging from a low of 1.3% in 1873 to a high of 5.7% in 1894.[16] In Edinburgh, for example, where compositors were particularly badly organised, only 2.4% of trade union printers (compositors plus machine managers) were unemployed in December 1893, compared to 8.6% of iron and engineering unionists.[17]

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[14] Burgess, Industrial Relations, p.26; D.C. Cummings, A History of the Boilermakers' and Iron and Steel Shipbuilders' Society (Newcastle, 1904), p.120.

[15] See A. Freeman and S. Webb (eds.), Seasonal Trades (1912); G. Stedman Jones, Outcast London (Oxford, 1971), pt.I.

[16] Board of Trade, Abstract of Labour Statistics, analysed by Musson, TA, p.103. Overall levels of unemployment were almost certainly lower for craftsmen than for printing workers as a whole.

[17] Gray, Labour Aristocracy, p.55.

On the other hand, printing experienced a marked seasonal cycle of demand. The demand for advertisements generally peaked just before Christmas, and the London season and parliamentary timetable also contributed to shaping the pattern. August was usually the slackest period, with employment picking up steadily until just before Christmas, slumping again in January only to recover just before Easter, with a further slump until a small recovery in July.[18] Newspapers, of course, were subject to sudden, unpredictable changes in the size of editions which often required them to engage extra hands at short notice. Casual employment among trade union compositors might range from one-eighth to one-fifth of total membership; when the seasonal and cyclical troughs coincided it might reach as high as one-third.[19]

As we shall see in more detail in Chapter III, these fluctuations strongly influenced the patterns of industrial conflict in the two industries, making regulation of the labour market a prime objective of trade unionism and determining major points of contention with employers. In engineering the sharp demand for labour in the upswing tended to draw a permanent pool of workers into the industry who were unable to find employment at other times: thus between 1880 and 1890 unemployment in the metal industries was 26% higher than the average of other industries. (This figure is of course somewhat inflated by the inclusion of shipbuilding.)[20] Similarly, in printing, seasonal fluctuations produced a pool of underemployed workers, whose condition was

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18 Webb and Freeman, Seasonal Trades, pp.28, 35; G. Arkell, 'Printers', in C. Booth (ed.), The Life and Labour of the People of London (1903 edition), 2nd ser., vol.II, pt.III, ch.1.

19 These estimates are based on the provincial Typographical Association: see Musson, TA, p.103.

20 Jefferys, Engineers, p.119.

always a threat to trade union regulation of wages and working conditions; overtime was likewise a major source of conflict in both industries. Given the pattern of the trade cycle in engineering, manufacturers were pressed to maximise and speed up their output in booms or lose customers to competitors able to produce machines more rapidly; hence for engineering workers the obverse of unemployment in the downswing was systematic overtime in the upswing. This tendency was exacerbated if employers invested in new machinery to meet expanded demand, as overtime was then necessary to amortise the capital invested as rapidly as possible.[21] Similarly, in printing, employers anxious to minimise their labour cost during slow periods might require extensive overtime from their permanent employees, while still relying on a large proportion of casual labour.

## Sectoral Structure

### Engineering

As we noted earlier, engineering was more a cluster of partially separate sectors united by common metal working processes (and, one should add, overlapping labour markets) than a unified industry, so that its boundaries are unusually difficult to define. These sectoral differences, founded above all on differences in product markets, resulted in variations in market position, profitability, vulnerability to competition (foreign and domestic), experience of the trade cycle, and in the capacity of employers for collective action, and will therefore play a central role in our analysis of industrial conflict.

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[21] Burgess, Industrial Relations, pp.15-16.

The initial growth of engineering during the first half of the 19th century was fuelled by the demand from the textile industry for machines and from the railroads for locomotives and rolling stock.[22] After mid-century, the growth of iron and steel shipbuilding called forth an increasing output of ships' engines, while the extension of mechanisation and steam power throughout the economy led to an expanded demand for a wide range of general engineering products. Beginning in the last two decades of the century, new products - electrical goods, consumer durables such as sewing machines, typewriters, cycles, and motor cars - came to form an increasing proportion of engineering production. With the stabilisation of the British economy after mid-century, together with the growth of export demand and the emergence of new products, engineering firms tended to specialise and the division between sectors became more pronounced. As the President of the Institution of Mechanical Engineers observed in 1874:[23]

> Within the last few years, the business of mechanical engineering has divided itself into distinct branches, so that a locomotive builder is little more than a locomotive builder.

The boundaries between sectors were, of course, by no means watertight. This was particularly true for machine tools; as Floud has shown through an examination of commercial directories: "it was in fact normal for machine tools to be made in conjunction with at least one other engineering product".[24]

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[22] See Burgess, 'Technological Change',

[23] Quoted in Jefferys, Engineers, p.53.

[24] Floud, Machine Tool Industry, p.42.

The processes involved in making machine tools are common to most branches of engineering, and firms in more specialised sectors appear to have moved in and out of machine tool production as a means of adapting to the trade cycle, as well as in response to the availability and cost of machine tools for their own purposes.[25]

Unfortunately, the only breakdown of engineering production by sector dates from the 1907 Census of Production, and therefore gives considerably more weight to the newer sectors, especially vehicles, than these would have possessed in 1890. Nevertheless, as a glance at table 2A reveals, the older sectors of the industry, especially textile machinery, railway engineering, and marine engineering continued to dominate output, though the production of cycles, motor vehicles and electrical goods was already considerable.

As S.B. Saul has demonstrated, textile engineering, which was predictably concentrated in Lancashire and Yorkshire, remained up to 1914 among the most successful branches of the industry, dominating foreign markets as well as those of home and empire, even surmounting the 45% ad valorem tariff to penetrate the US market. This sector was dominated by half a dozen Lancashire firms, employing three quarters of the total work force of 40,000; one firm, Platt's, employed 12,000 men. Here concentration and the relative stability of the export market (half of the sector's product was exported in 1907) encouraged a substantial degree of market control and employer cooperation.[26]

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25 Ibid., pp.32-50.

26 S.B. Saul, 'Engineering', in D.H. Aldcroft (ed.), The Development of British Industry and Foreign Competition, 1875-1914 (Glasgow, 1968), pp.191-95; and his 'The Market and the Development of Mechanical Engineering', Economic History Review, 2nd ser., 27(1) (1967).

Railway engineering, the largest sector of all, was in practice split into two completely separate branches: the railways themselves whose chief interests were not in engineering at all, and the private builders. The works of the railway companies were huge - the largest, the Great Western Works at Swindon, employed 14,000 men in 1914, while five owners employed between 4,000 and 7,000 - and generally quite isolated from the industry as a whole. The companies refused to join employers' associations and, at least through the 1890s, also were unwilling to recognise trade unions or negotiate with their representatives.[27] Private building was also quite concentrated: "by 1870 there were some nine or ten important builders of large locomotives and a similar number for smaller engines"; and in 1903 three of the four largest makers based in Glasgow amalgamated to form the North British Company employing 8,000 in 1907. In contrast to the railway companies, who were legally confined to the home market, the private builders were heavily involved in the export trade, became progressively more dependent on foreign markets as the century wore on. Here, however, they became the first sector of British engineering to encounter serious foreign competition, and German locomotives, better suited for poorly constructed tracks, drove them out of European and Latin American markets into empire preserves from the 1870s.[28]

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27 Saul, 'Engineering', pp.195-96. On the reluctance of the railway companies to join employers' associations, see the evidence of J. Whittaker (ASE Manchester ODD) to the Royal Commission on Labour, Third Report, with Minutes and Digest of Evidence, (C. 6894), Group A, P.P. 1893-4, XXXII, q. 22,665; on their refusal to recognise collective bargaining, J. Swift (General Secretary, SEMS), ibid., q. 23,655; on Crewe and Derby, see the evidence collected by F. Galton, Webb Collection EA XVI, f. 6, pp.54-61; and on Swindon, see A. Williams, Life in a Railway Factory (1915).

28 Saul, 'Engineering', pp.196-205; ibid., 'Mechanical Engineering', pp.114-17. Private railway carriage making, though more successful in foreign markets after 1870, had a similar structure comprising a small number of large companies. See Saul, 'Engineering', pp.203-5.

Marine engineering is difficult to disaggregate from the closely allied shipbuilding industry, but together, the two sectors comprised 25% of the total employed in the metal trades in 1907.[29] Most of the large shipbuilders, whether involved primarily in commercial or military construction, tended to have their own marine engine works, and therefore to employ large numbers of skilled engineers, especially fitters: in the early 1890s, for example, Armstrong's employed some 474 fitters out of a total of 5669 men in their shipyards at Elswick, while Harland and Wolff's had 364 fitters and 120 turners out of 2,475 men in the engine department of their yard in Belfast.[30] The growing capital requirements involved in large scale shipbuilding resulted in the emergence of a cluster of giant firms in the main shipbuilding centres of the Northeast Coast, Clydeside, and Northern Ireland; the ten largest firms' share of output rose from 30% in 1883 to 40% in 1913. At the same time, this tendency toward concentration should not be overstated: firms with fewer than 2,000 employees continued to produce nearly 60% of national output as late as 1901, while the number of firms able to launch over 20,000 gross tons per year actually grew from 17 to 39 over the same period.[31] Moreover, as in the car industry today, a small number of large firms coexisted with a large number of smaller ones involved in producing components (such as marine engines), often on a sub-contracted basis.[32]

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[29] Jefferys, Engineers, pp.198-99.

[30] Webb Coll. EA XXI, f. 18, p.10, and XVI, f. 1, pp.11-12. On relations between marine engineering and shipbuilding firms, see Reid, Shipbuilding, pp.5, 156-57.

[31] Ibid., pp.21-29.

[32] Saul, 'Engineering', pp.205-7.

Arms production constituted a sector closely allied with shipbuilding and marine engineering, but clearly distinguishable on the basis of the rather different market conditions created by government contracting. The state itself maintained a set of extremely large engineering factories in the shape of the Royal Ordnance Works: in June 1886, the three main departments of the Woolwich Arsenal employed a total of 9,890 men, and the small arms factory at Enfield another 2,172.[33] At the same time, the state filled a large proportion of its military requirements through private contracting. A combination of government policy, the specialised and capital-intensive character of arms production, and the defensive reactions of the contractors themselves tended to restrict entry to a small number of firms primarily engaged on military work. Big gun making in the 1880s, for example, was concentrated on three firms: Armstrong, Whitworth, and Vickers, with Maxim-Nordenfeldt and Hotchkiss holding on to a smaller share of the market; Vickers absorbed Maxim-Nordenfeldt in 1889 and Armstrong amalgamated with Whitworth in 1897. These firms numbered among the largest in the country: Armstrong's Elswick works employing 13,000 to 15,000 men in the 1880s and 90s was undoubtedly the largest engineering establishment of the period, while defence contractors comprised 10% of Payne's list of the largest British companies of 1905.[34]

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[33] Committee on the Organisation and Administration of the Manufacturing Departments of the Army (Morley Committee), Report with Minutes of Evidence, (C. 5116), P.P. 1887, XVI, app. IV.

[34] C. Trebilcock, The Vickers Brothers (1977), ch.1, especially pp.8-9; P.L. Payne, 'The Emergence of the Large scale Company in Great Britain, 1870-1914', Economic History Review, 2nd ser., 20 (1967). On Armstrong's see the testimony of Capt. A. Noble to the Morley Committee, qs. 8861-9069, especially q. 9067; W. Boyd, 'Sir W. Armstrong, Mitchell, and Co., Ltd.' in British Association, Handbook to the Industries of Newcastle and District (Newcastle, 1889); letters from Col. Dyer (Managing Director) to B. Potter, 1891-2, Webb Coll., EA XXI, f. 18; evidence of J. Ratcliffe (ASE ODD Northeast coast) to Select Committee on Government Contracts (Fair Wages Resolution), Report with Minutes of Evidence, P.P. 1897, X, Qs.2446-2577; the article on Armstrong' in W.G. Gordon, Foundry, Forge, and Factory (1890); and A.J. Cochrane, The Early History of Elswick (Newcastle, 1909). I am indebted to Keith McClelland of Birmingham University for several of these references.

Private arms construction amounted to 8% of total engineering and 23% of total shipbuilding production in 1907.[35] The pattern of demand in this sector was governed by an entirely different cycle than the rest of the industry: a military contracting cycle (supplemented by foreign arms sales) which depended on the changing level of international tension, and often ran in an opposite direction to the commercial trade cycle.[36] As Trebilcock has shown, the response of the large arms manufacturers to the exigencies of producing for a single unpredictable client was to evolve a form of simultaneous competition and collusion attacked by contemporary radicals as the 'arms ring', especially with the intensification of the arms race after 1900.[37] Unlike the other sectors we have discussed so far, military production contained a large component of standardisation, especially in areas such as shells and light guns. The arms manufacturers, accordingly, figured among the pioneers of mass production in Britain. Consequently, they found themselves in continual conflict with engineering craftsmen over the division of labour. These conflicts, coupled with their distinctive market position, encouraged them to take the lead in employers' organisations and militancy.

The bulk of engineering production, however, was concentrated in the more amorphous field of general engineering. (See Table 3A) Within this category there were of course numerous firms catering for specialised markets, such as

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35 Trebilcock, Vickers Brothers, p.25.

36 Ibid., ch.1, especially figure 1.

37 Ibid., passim; cf. his 'Radicalism and the Armaments Trust' in A.J.A. Morris (ed.), Edwardian Radicalism (1974), and 'A "Special Relationship" - Government, Rearmament and the Cordite Firms', Economic History Review, 2nd ser., 19(1) (1966).

sugar machinery (concentrated in Glasgow) or printing machinery. But while engineering manufacturers' turn towards overseas markets after 1850 led the boundaries between certain sectors to become sharper, the variety of foreign demand discouraged product standardisation. This was true even in such distinctive sectors as textile and railway engineering, as Saul has argued.[38] It was even more pronounced in machine tool making, the core of general engineering: here a dominant firm like Greenwood and Batley of Leeds could produce 793 products between 1856 and 1900, 457 of which were one-off jobs.[39] Despite the existence of a nucleus of large firms such as Greenwood and Batley or later Alfred Herbert of Coventry, firms moved in and out of this sector with comparative ease, as Floud has shown; this fluidity seems to have been characteristic of general engineering as a whole.

Underlying the fluidity of production in general engineering was a complex network of sub-contracting relations between the large, specialised firms and the small general shops which supplied them with components. While this pattern clearly existed in sectors such as marine and textile engineering, it is best documented for armaments. One leading Newcastle employer noted in 1908 the dominance achieved by Armstrong's over the engineering trade of the city through these relationships: in 1915 they were found to have some 1,500 sub-contractors, some as far off as Scotland. Similarly, the Board of Trade found at the onset of the First World War that "most firms of any standing

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38 Saul, 'Mechanical Engineering' and 'Engineering'.

39 R. Floud, 'Changes in the Productivity of Labour in the British Machine Tool Industry, 1856-1900' in D.N. McCloskey (ed.), Essays on a Mature Economy (1970), p.321.

or capacity" were already involved in munitions production either directly or through sub-contracts for the arms firms or the Arsenal.[40] These sub-contracting relationships were themselves the product of a strategic choice by the large firms to minimise the risks of the business cycle: in the context of Britain's slow growth after 1870 and the emergence of foreign competition, the larger firms often preferred to meet expanded demand in boom periods by extending their network of sub-contractors rather than by investing in new capacity themselves.

Thus it was above all general engineering, producing for a variety of partially specialised markets at home and abroad, which fits the picture of the engineering industry as a multiplicity of small, undercapitalised firms drawn by the Board of Trade as late as 1918.[41] It was also in various sections of general engineering and in what were to become the new mass production sectors that German and American competition began to make itself felt during the 1890s: light machine tools, agricultural machinery, cycles, sewing machines, motor vehicles, and electrical goods.[42]

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40 Evidence of B.C. Browne (Hawthorn, Leslie, and Co.) to the Royal Commission on the Poor Laws and the Relief of Distress, Appendix, vol.VIII (Minutes of Evidence), (Cd. 5066), P.P. 1910, XLVIII, q. 86,241; Hinton, Shop Stewards, pp.25-29.

41 Floud, Machine Tool Industry, pp.32-50; S.B. Saul, 'The Machine-Tool Industry in Britain to 1914', Business History 10(1) (1968); Board of Trade Departmental Committee, Report on the Position of the Engineering Trades After the War, (Cd. 9073), P.P. 1918, XIII.

42 S.B. Saul, 'The American Impact on British Industry, 1895-1914', Business History 3(1) (1960); R. Floud, 'The Adolescence of American Engineering Competition, 1870-1914', Economic History Review, 2nd ser., 27(1) (1974), and ibid., Machine Tool Industry, ch.4; I.W. McLean, 'Anglo-American Engineerin Competition, 1870-1914: Some Third Market Evidence', Economic History Review, 2nd ser., 29(3) (1976); and A.E. Harrison, 'The Competitiveness of the British Cycle Industry, 1890-1914', Economic History Review, 2nd ser., 22(2) (1969).

Printing

As in engineering, the printing industry was marked by pronounced sectoral divisions: these were in fact simpler and the lines of demarcation between them somewhat sharper than in engineering. Late 19th century printing was divided into three main sectors: newspapers, books, and jobbing, with government and periodical printing as further sub-divisions. These were recognised by contemporaries as nearly distinct branches, though a 19th century general printing firm might well produce books, a few weekly or monthly periodicals, and do some jobbing work into the bargain.[43] The only comprehensive breakdown of output, that given by the 1907 Census of Production, doubtless overstates newspaper production relative to 1890, as a result of that sector's rapid growth in the intervening period. (See Tables 1.C and 2.B).

Employment is more difficult to estimate: the categories of the Census of Production reveal that newspaper and periodical printing employed 45,303 people (including 3,287 women) in 1907, while the rest of the industry - books, jobbing, bookbinding, lithographic, photographic and process engravers, etc. - employed 172,677 (including 55,583 women).[44] In a partial sample taken in the

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[43] J. Southward, Practical Printing (1882), ch.18; B.W.E. Alford, The London Letterpress Printing Industry, 1850-1914 (London Ph.D. Thesis, 1962), ch.4.

[44] Analysis of Census of Production in J.C. Smail, Training and Employment in the Printing Trades (London County Council, 1917), pp.2-9. The Census of Production divided printing employment into 'Group I - Printing and Bookbinding Factories and Workshops (Printing Companies)' and 'Group II - Factories Engaged in the Printing and Publishing of Newspapers and Other Periodicals'. The overlap between the two groups was minimal, a fact which illustrates the segmentation of the industry: the value of newspapers produced in Group I workshops amounted to only 1,143,000 of a total output of 24,597,000, while conversely jobbing work done in periodical factories comprised 1,077,000 of the total of 13,237,000. As we shall see, however, many periodical printing factories were in fact owned by book and jobbing printers, though this is obscured by the census categories.

last week of September 1906, the Board of Trade found that 1,757 male compositors over 20 years old were in full or part-time employment on daily newspapers, while some 10,527 were similarly occupied on book, jobbing, or weekly news work. As Cannon has pointed out, this survey (which made no claims to completeness) most likely overstates the proportion of daily news compositors in the total because of their greater accessibility to the surveyors.[45] In London, the News Department accounted for roughly 10% of the total membership of the London Society of Compositors (LSC), and the proportion of news compositors was no doubt lower outside the metropolis.[46]

Both news and jobbing printers produced a succession of highly perishable and unique products: news becomes worthless if dated, so that newspapers often go through several editions in a single night, each of which is a qualitatively different product; jobbing firms catered to a temporally specific and therefore equally perishable demand for publicity and advertising materials. Thus both newspaper publishers and jobbing printers needed to be located close to their markets and sources of information - particularly given the state of communications at the end of the 19th century - tending therefore to remain concentrated in London and other major cities.[47] Consequently, as the Managing Director of

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45 Board of Trade, Report of an Enquiry into the Earnings and Hours of Workpeople in the UK in 1906, pt. VIII, Printing and Paper Trades, (Cd. 6556), P.P. 1913, CVIII; Cannon, Skilled Worker, pp.71-73.

46 Figures submitted by the LSC for the years 1891-99, in Notes of the Proceedings of an Arbitration between the LSC and the Master Printers' Association, before G.R. Askwith, Feb. 1901 (1901), p.109; and T.E. Naylor (LSC General Secretary) to Industrial Council, Enquiry into Industrial Agreements, Minutes of Evidence, (Cd. 6953), P.P. 1913, XXVIII, q. 8371.

47 P.G. Hall, The Industries of London Since 1861 (1961), ch.6.

the Manchester Guardian noted in 1902:[48]

> The nature of the work takes the printing industry out of the rank of those industries in which foreign competition is possible to any great extent. By far the greater part of printing, for instance all newspapers, magazines, weekly papers, and the smaller kind of jobbing work must be done by each country on the spot where it is wanted...

At the same time, domestic competition was intense among both newspapers and jobbing printers. In the context of the explosive growth of newspaper readership in the late 19th century, new papers were able, despite the considerable capital required to enter the market and to capture a considerable share of circulation, especially in London: the first million circulation daily, the Daily Mail was only founded in 1896. As Lee puts it, "...the situation was one of general and rapid expansion, so that it was not necessary to lose circulation to fall relatively behind one's competitors, while it was necessary to continue to gain in order to keep up".[49] Ownership of provincial papers remained comparatively unconcentrated right up to 1914 though in each town one or two papers might predominate. Despite the greater apparent concentration in London - in 1910, three companies controlled 66.9% of morning circulation and 82.6% of evenings, while four companies controlled 80.7% of Sunday circulation - the volatility of their readership still ensured a highly competitive environment.[50]

General or jobbing printing was the sector within the industry most similar to general engineering in its variegated and fragmented structure. The low capital requirements for a small printing shop led many journeymen to set up as small masters: Naylor of the LSC estimated in 1912 that there were in

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48 G.B. Diblee, 'The Printing Trades and the Crisis in British Industry', Economic Journal (Mar. 1902), p.8.

49 Lee, 'Structure...of the Press', p.124.

50 Ibid., pp.126-27; and ibid., Popular Press, p.293.

London some 3-400 printers employing no labour but their own; the 1911 Census recorded 1,339 men in England and Wales as 'working on their own account', while the TA recognised 703 offices employing 1-2 men and 669 employing 3-7; many more offices of this size were of course unrecognised.[51] Not all general printers, however, fit the model of a small shop, located in a back alley or country town, employing antiquated techniques and boy or female labour, which was so often excoriated as the source of compositors' woes during the second half of the 19th century. Some firms were able to develop a more viable position on the basis of large specialised contracts - one firm, for example, was responsible for printing all pawn tickets in London - and these firms, often organised as joint stock companies, were able to purchase machinery and to operate on a larger scale. The gap between large and small firms tended to widen as the century wore on because of the increased capital requirements associated first with flat-bed and rotary presses and then with composing machines, and many smaller specialised firms were devoured by large commercial printers or book publishers such as Waterlow and Sons or Hazell, Watson, and Viney.[52]

The ease of entry into the jobbing sector continually threatened to unleash waves of competitive price cutting, as firms submitted tenders at or below cost to secure contracts. As the London Master Printers' Association (MPA)

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51 Naylor to Industrial Council, Minutes of Evidence, q. 8381; Alford, Letterpress Printing, pp.93-94; Musson, TA, pp.93-94.

52 Alford, Letterpress Printing, pp.97-117, 148-49, 161-63; ibid., 'Business Enterprise and the Rise of the Commercial Letterpress Printing Industry, 1850-1914', Business History 7(1) (1965); Musson, TA, pp.91-95. Alford reckons the size of a large firm at 2-400 employees in 1850 and 200-1,000 in 1914; medium-sized firms employed 50-200 workers in 1914. 'Business Enterprise pp.1-2, 10-11. A daily newspaper might employ up to 2,000 workers while a large jobbing firm like Clowes employed 1,600 men and 100 machine presses. Child, Industrial Relations, p.160

remarked in 1892:[53]

> It is notorious that, under stress and unhealthy competition, houses undertake work involving a large amount of composition at prices which allow but a slight percentage on compositors' wages, with the idea of merely covering the costs of composition, and of making a profit in the other departments.

The reduction of such 'unhealthy competition' through the diffusion of systematic cost analysis became one of the principal objects of the Federation of Master Printers (FMP) from its inception in 1901.[54]

Book publishers, on the other hand, produced a less perishable commodity than the other sectors of the industry, and one which was relatively unaffected by seasonal fluctuations. Similarly, book production was more amenable to standardisation, and one important class of book printing, reprint work, could be substantially routinised; in Edinburgh it became the mainstay of the female compositor.[55] Thus Diblee's remarks about the immobility of printing work and its freedom from foreign competition apply only to a lesser extent to book publishing. Though book publishers often complained of German and Dutch competition, in reality such competition does not seem to have been particularly acute: in 1896 the declared value of books, maps, and charts imported into the UK was £283,748, compared to £1,309,036 in exports, and the balance became more favourable to Britain during the succeeding decade.[56] More important

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53 London MPA Special Circular 9.11.1892, quoted in Child, Industrial Relations, p.198.

54 M. Sessions, The Federation of Master Printers (1950), pp.40-52; see also STC Feb. 1893, and Child Industrial Relations, pp.161-62.

55 Naylor to Fair Wages Committee, Minutes of Evidence, (Cd. 4423), P.P. 1908, XXXIV, qs. 252-56.

56 When pictures and prints are taken into account, the balance of imports and exports was more equal: £428,037 of the former as opposed to £395,200 of the latter in 1896. Smail, Printing Trades, p.9. For complaints about foreign competition see BCPS 1894 passim, especially 12.17.1894, and P.W. Wilson in The Heart of the Empire (1912), quoted in Hall, Industries of London, p.103.

than foreign competition was the possibility of reducing labour and overhead costs by relocating production in country towns outside the control of the metropolitan trade unions, a process which accelerated after 1890.[57]

The book firms also became heavily involved in the rapidly expanding market for magazines, weekly newspapers, and other periodicals. In 1887, the London-based firm of Hazell, Watson, and Viney published 42 magazines with a combined circulation of 12,400,000; by 1895, their number had doubled to 95, and other firms such as Wyman's, the St. Clements Press, and Spottiswoode's followed hard on their heels. The segmentation between the relatively stable demand for books and the more erratic and variable demand for periodicals - which paralleled the wider split between the news and book sectors - was reflected in the internal structure of the book firms themselves: many London-based firms built large modern plants in the country for the book trade, while continuing to produce periodicals from their cramped and archaic London premises, close to the sources of news and advertisement and free from the risks of major capital investments.[58]

As in the newspaper sector, opportunities abounded for rapid growth and high profits in the sharply expanding periodicals market. Imaginative new firms like George Newnes, whose Tit-bits revolutionised popular journalism, realised net profits of £43,000 in 1892, £65,000 in 1900, and £81,000 in 1914, while Harmsworth paid 15% dividends during the first years of the 1900s.

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[57] Alford, Letterpress Printing, pp.74-77, 87-89; Hall, Industries of London, ch.6; and below pp.271-72, 300.

[58] Alford, Letterpress Printing, pp.144-48, 156-58.

Competition for this market was, however, equally intense: Newnes and Harmsworth found themselves involved in a circulation war which forced the latter to suspend dividends between 1906 and 1909, while Hazell, Watson, and Viney and Wyman's fought for control of the magazine trade by tendering for contracts at cost price on the eve of the First World War. The expansion of the market, the intensification of competition, and the high capital costs attendant on mechanisation and investment in new plant took their toll on the book sector as a whole: Alford's survey of the business records of some 20 London-based firms of varying sizes suggests that net profits as a proportion of total turnover fell from 25-30% in 1870 to 10% in 1914.[59]

Government printing likewise became markedly more competitive after mid-century. In this case, however, political forces rather than the emergence of new markets were chiefly responsible: parliamentary pressure forced the Stationery Office to offer contracts to a much wider circle of firms than had been true before 1870, when Hansard and Eyre and Spottiswoode monopolised large classes of government printing at inflated prices. Government printing was in general more similar to news and periodical printing than to book work in its sensitivity to time pressures and its consequent dependence on London, though by the first decade of the 20th century trade unionists were complaining about the decentralisation of such work to the country as well.[60]

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[59] Ibid., pp.95-98, 106, 135-44, 157-61, 169-70; ibid., 'Business Enterprise', p.6.

[60] Alford, 'Government Expenditure and the Growth of the Printing Industry in the 19th Century', Economic History Review, 2nd. ser., 17(1) (1964-5); Hall, Industries of London, p.100; Naylor to Fair Wages Committee, qs. 214 ff.

Competition, Concentration, and Employers' Collective Action

These variations in the nature of the product and in market position between the printing and engineering industries, as well as between sectors in each industry, were of cardinal importance in determining the respective capacities of employers for collective action in opposition to trade unions. But industrial conflict is not merely an expression of the balance of market forces, and the emergence of employers' organisations cannot be read off directly from patterns of competition and concentration, any more than can the development of trade unions. Instead, market pressures will be mediated through the unfolding struggles with organised workers which provide the immediate spur to employers' militancy.

In printing, employers in the leading sector, newspapers, were deterred from successful combination by the particular impact of competition on the industry. The perishibility of the product made newspaper proprietors extremely vulnerable to strikes and short interruptions of production; the losses incurred could not easily be made up later. Similarly, the keen competition between papers for circulation and advertising revenue, coupled with the volatility of the reading public, increased the risks for any individual proprietor in a confrontation with his workforce while rendering cooperation among publishers difficult to achieve. At the same time, the rapid growth of demand and of profits in this sector encouraged employers to seek compromises with their workforce which could be financed by the steady expansion of output rather than pursue a riskier but potentially more lucrative strategy of confrontation. Hence as contemporaries observed, newspaper proprietors shied

away from major collisions with the trade unions:[61]

> The only printing operatives who find it easy to force their demands upon employers are the printers employed in the daily newspaper trade. As may be readily imagined, the proprietors of such papers cannot afford to cease publication even for an edition; and this has had a considerable effect on the discipline of daily newspaper offices, which discipline, from the point of view of the Trade Union enthusiast, is the most perfect of any branch of the trade. Indeed, so real is the dread among newspaper proprietors of any stoppage in their works, that one prominent London proprietor is said, on one occasion when certain demands were put forward by one section of his employees, to have stated that he would grant them even though it cost him £10,000 per year - a striking commentary on the power of Trade Unionism to levy what is practically, in regard to the position in which the employer finds himself, a form of blackmail.

Similarly, the Secretary of the London Master Printers' Association, asked whether his members did not possess "the force of capital in relation to no capital" as a lever in dealings with their employees could respond:[62]

> ...In the printing trade it is not always a question of capital. I have in my mind a case recently where we unfortunately had to fight against one of these unions. It was a question of a daily publication, which had to be brought out at a fixed hour, and the employer could not in any way delay his publication, otherwise he was liable to heavy penalties. So you see it is not always a question of capital against non-capital.

While such considerations applied with diminished force to the provincial press, where the localisation of demand made cooperation between proprietors in different towns more feasible than in London, the more pronounced contrast was with the large book and jobbing firms. It was the large London book firms, able to stockpile their relatively standardised and durable product, but faced

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61 C. Watney and J.A. Little, Industrial Warfare (1912), pp.217-18; cf. LUA MC Dec. 1900.

62 H. Vane Stow to Select Committee on Stationery Contracts, Report with Minutes of Evidence, P.P. 1896, XIII, q. 1866.

with declining profit margins and vulnerable to competition from provincial plants unfettered by trade union wage rates and work rules, who played the most active role in resisting the demands of the metropolitan printing unions. The multiplicity of smaller jobbing firms were not themselves able to form effective combinations or to withstand a major stoppage, but parallel difficulties in meeting union wages and working conditions often ranged certain of their number on the side of the book firms in resisting the demands of the unions.

These variations can be discerned quite clearly in the reactions of each group of employers to the LSC's memorial for a revision of the London Scale of Prices in 1890. The London MPA had been dissolved in 1866, and the demand for a revision of the Scale led the employers to call for its re-formation as a negotiating body. The opening meeting of the new organisation known alternatively as the Master Printers' Association or the Printing and Allied Trades' Association was overwhelmingly dominated by the representatives of the large book and jobbing firms, who called with a single voice for delay and tough negotiation in dealing with demands which they asserted would undermine their competitive position and accelerate the movement of work out of London. The single spokesman for the newspaper press, the editor of Lloyds' Weekly Newspaper observed that,

> They had to be printed at a given moment, and he thought the matter of the men's demands should at once be dealt with. In regard to newspaper work, this matter should speedily be settled; first to ascertain what was really wanted, and then to deal with it at once.

A representative of the smaller jobbing firms likewise complained that "... those firms employing 60 or 70 hands had not had the same opportunity of expressing their views as the larger firms".[63]

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[63] Article in BCPS 11.4.1890, reprinted in LSC Trade Reports 1890.

It was these same large printing and jobbing firms who would offer the most determined opposition to the compositors' demand for a wage advance in 1901, and to the Federated movement for the 50 hour week in 1911; the daily newspapers, for their part, split off from the London MPA in 1906 when faced with the threat of a London-wide printing strike, forming their own organisation, the Newspaper Proprietors' Association.[64] These structural factors are not, of course, the entire story: to anticipate the events narrated in subsequent chapters, had the LSC adopted a completely intransigent attitude towards the introduction of composing machines, the London newspaper proprietors might well have overcome their divisions and formed a more solid alliance against the union's demands. Similarly, though the Provincial Newspaper Society had atrophied with the expansion of the industry after 1855, provincial newspaper employers were able to surmount the (admittedly weaker) barriers among themselves to force the Typographical Association (TA) to engage in national negotiations, and the convergence of conflicts with the union over apprenticeship, work rules, and hours forged an alliance between master printers throughout provincial Britain across sectors which nearly precipitated a national strike in 1911.[65]

Engineering employers were far more successful at collective organisation than their counterparts in printing. As capital goods producers they could in principle (though not always in practice) stockpile their product during a

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[64] See below, pp.278-79.

[65] Lee, 'Structure...of the Press', pp.125-26; Child, Industrial Relations, pp.201-2; and see below pp.230, 304-5, 315-16.

shutdown and so later recoup a proportion of their losses,[66] while the greater size and capitalisation of the leading firms enabled them to withstand a prolonged strike more easily. Unlike newspaper publishers as well, engineering manufacturers sold an important proportion of their production abroad and so were vulnerable to foreign competition, which Britain's commitment to free trade would allow to penetrate even the home market, as certain American products were to do to an alarming extent during the mid-1890s. Consequently, whereas the newspapers were sheltered from foreign competition and could rely on their buoyant domestic growth prospects to absorb the costs of compromise with their workers, engineering employers faced the discipline of an international market which threatened to penalise them if they allowed labour costs to get too far out of line with those of their competitors. And like the book firms, engineering manufacturers found their resolve in dealings with their labour force stiffened by declining profit margins and the gradual exhaustion of the existing division of labour in the depressed decades after 1870.

While the high levels of concentration in important sectors such as textile machinery, private locomotive construction, and armaments ultimately facilitated the establishment of a cohesive employers' association, the leading role in the formation of the Engineering Employers' Federation (EEF) was played by firms in marine engineering, a less concentrated sector whose pattern of competition and relation to the business cycle brought it into especially fierce collision with its workforce. As Paul de Rousiers, an acute French observer of

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66 For some of the obstacles to stockpiling in capital goods production due to the custom-made character of the product, see Reid, Shipbuilding, pp.45-47.

the British industrial scene, commented at the time, the pattern of demand gave skilled workers in shipbuilding and marine engineering a hold over their employers similar to that of the newspaper printers:[67]

> The shipbuilding industry...is essentially migratory and irregular. It moves alternatively from place to place and, occasionally within a single centre, from yard to yard. The work presents, at the same time, an urgent character which one does not find to the same extent in other industries. A firm is most often obliged to deliver a ship within a given time period, under penalty clauses, after which the order is shifted to another yard. Note that an order for a ship is an important event: the construction of a single liner represents a financial interest which can assure or compromise the dividends of a whole year. As a result, the worker can, at a given moment, to a great extent use methods of intimidation against his employer, and by the threat of an interruption of work which would be fatal to the yard and even to a whole region obtain important concessions...
>
> The industrial situation, which explains the demands of the shipbuilding workers, of the engineers in particular, is equally the reason for the organisation of the employers. To keep a flourishing industry in their region, to protect it against the dangers that the attitude of their workers produces, the employers of the North-East have been led to sacrifice their commercial rivalry to their common interests.

Unlike the newspaper proprietors, however, marine engineering employers were able to use their greater resources and their position as capital goods producers to overcome the obstacles to successful combination; moreover, the possibility of losing their hold on international markets to the nascent continental constructors gave them an additional spur in the same direction.

It was, however, an intensification of local conflict between skilled workers and their employers which gave the decisive impetus to the organisation of the latter. Beginning with the upturn in trade of the late 80s and early 90s, the marine centres, particularly the Northeast Coast, were racked by a

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67 P. de Rousiers, Le trade-unionisme en Angleterre (Paris, 1897), pp.285-86, my translation.

series of costly disputes over wages, demarcation, and overtime, as the unions sought to recoup the losses of the preceding period of depression. Faced with what de Rousiers referred to as "a state of almost perpetual warfare", the marine employers began to seek wider structures of cooperation. In 1895-6, employers in Belfast and on the Clyde staged a joint lockout against an ASE wage demand, and their success provided the signal for the formation of the EEF later that year; its original membership was confined to the major marine districts of the Northeast, Clydeside, Belfast, Liverpool and Barrow.

A previous attempt to establish a national engineering employers' association, the Iron Trades Employers' Association (ITEA), in the aftermath of the union victory in the 1871 nine hours strikes, had foundered on the diversity of the industry, and especially on the divergent interests of the marine and inland producers. Though William Armstrong had drawn up the original proposals for its formation, the Northeast Coast employers held aloof from the ITEA after its inception, though a major strike in Sunderland in 1883 ultimately persuaded them to affiliate. It was the darkening storm clouds over mechanisation and the eight hour day which led the inland producers themselves to make common cause with the marine firms, and various employers' association, including Manchester, Bolton, and London joined the EEF in 1897. With the establishment of a federal structure, the EEF was able to turn the sectoral differences among its members to its advantage, becoming a formidable national organisation dominated by large firms exercising a significant degree of market control in their own sectors, and concerned as much with foreign as with domestic competition. But despite the strategic advantages of its structure, which combined firm central direction with substantial autonomy

for its district associations, the EEF's expansion from 180 firms at the onset of the 1897-8 lockout to 702 at its close was in large measure a product of coercion: the large firms initiated a boycott of all engineering concerns not locking out their workers, which their sub-contracting networks rendered widely effective. Even at its height, however, the EEF was only able to lock out 25% of ASE members, a figure which testifies to the preponderance of small and unspecialised firms in engineering employment.[68]

Thus in both printing and engineering, the capacities and inclinations of employers for collective action was strongly conditioned by variations in the nature of the product, the structure of competition, and the level of concentration. But the formation of militant and effective employers' association depended at the same time on the evolution of industrial conflict itself, and therefore on the outcomes of the strategic choices and initiatives of employers and trade unions alike. "Commercial rivalries", in de Rousiers' words, had always to be balanced against "common interests", and the precise extent of the latter was by no means fixed in advance, but had rather to be determined in the course of the unfolding struggle with the unions.

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68 E. Wigham, The Power to Manage (1973): chs.2-3; EEF, List of the Federated Engineering and Shipbuilding Employers who Resisted the Demand for a 48 Hours Working Week, 1897-8 (1898); ASE, Notes on the Engineering Trades Lock-out, p.14, and see below, pp.200-1.

# Chapter II

## The Division of Labour, Craft Regulation, and Trade Union Organisation

The broad economic structures examined in the previous chapter - patterns of growth, fluctuation, competition, and concentration - generate those pressures towards the transformation of the division of labour which are our primary concern in this thesis. The outcome of conflicts between skilled workers and their employers over the structure of the division of labour will naturally depend to a large extent on the position of craftsmen within the already existing division of labour, and on the forms of regulation which they have been able to establish through their workshop organisations and wider trade union institutions. In this chapter, we will explore the position of skilled workers in the division of labour, together with the forms of craft regulation which they created, on the eve of a major wave of mechanisation in both printing and engineering in the 1890s. In offering a somewhat static account of these structures and practices, our aim is above all to delineate the framework of conflict between skilled workers and their employers, and in the case of craft regulation, to draw out its underlying principles and rationale. In the succeeding chapter, we will attempt to set these structures in motion by examining the characteristic conflicts between skilled workers and their employers during the period preceding mechanisation; there we will, of course, be more centrally concerned with the specific features of each industry than can be the case in this chapter.

## The Division of Labour

The most basic contrast between the division of labour in printing and engineering lay in the relative technical immobility of the former and the more recent emergence of the latter. In printing, despite the vast expansion in the volume of printed material, particularly newspapers, during the second half of the 19th century, and the attendent revolutions in the technology of the printing press itself, typesetting remained the preserve of the hand compositor using techniques that had changed little since the days of Caxton and Gutenberg. Engineering, by contrast, was itself a product of the industrial revolution, and the division of labour during the mid-Victorian era was the product of a period of rapid economic and technical change between the 1830s and 50s. More importantly, the division of labour in engineering was the outcome of bitter struggles between skilled workers and their employers. Thus while it is possible to offer a technical description of the hand compositor' labour without making reference to trade unionism and industrial conflict, the same cannot be done for that of the mid-Victorian engineer: the technical and social aspects of the division of labour are inextricably intertwined. Nonetheless, as we shall see in later sections, beneath its technical immobility the division of labour in printing was governed by a complex web of craft regulation and so cannot be fully understood in technical terms, though it may be depicted as such.

## Printing

By the middle of the 19th century, the expansion of printing enterprises

had begun to create a division of labour between composition and press work in most large and medium-sized offices, a division which became progressively sharper as the century wore on. While many young men in the provinces were still trained as 'printers', serving an apprenticeship to both branches of the trade, and journeymen often shifted from case to printing machine in those shops which could not provide sufficient work to keep the latter running full-time, this practice of 'twicing' was strongly frowned upon by the unions and prohibited entirely in London. By the end of the century it was becoming attenuated as a result of the increasing dominance of the larger firms and the improved organisation of the machine room, particularly in the provinces.[1]

Within the machine room itself, the technical dynamism of the printing press, with the emergence of the flat-bed and rotary presses from the 1830s onwards, gave rise to a complex division of labour between apprenticed machine managers, specialised labourers who worked their way up a ladder of jobs to the demanding task of 'pointing' and 'stroking' connected with the feeding of the machines, and general labourers responsible for carrying type-filled forms and heavy rolls of paper. Once the printing labourers formed their own union in 1889 (which ultimately became NATSOPA), they began to demand access to promotion to the most responsible jobs which the machine managers sought to reserve for apprenticed craftsmen. The most serious conflicts emerged over the management of rotary machines, whose operators had often been recruited from the ranks of engineers or even labourers, and whose organisation had been neglected at first by the craft unions. It was the persistent attempts by the

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[1] Musson, TA, pp.249-63; Child, Industrial Relations, p.217.

various unions organising apprenticed machine managers to force those non-craftsmen who became managers of rotary machines to join their ranks which would precipitate the transformation of the former Printers' Labourers Union into an organisation seeking to embrace all grades of printing workers.[2]

While the Times and certain large provincial papers such as the Manchester Guardian, the Bradford Times, and the Sheffield Independent, introduced Hattersley or Kastenbein composing machines beginning in the 1860s, for reasons we will explore in chapter IV these did not prove satisfactory and the vast bulk of all typesetting continued to be done by hand up until the 1890s. The division of labour in the composing room accordingly remained far simpler than in the machine room, and apprenticed compositors were able to monopolise the key jobs in most society houses, and indeed in many outside the ambit of union control. Hand composition was (and continues to be) divided into three main operations: typesetting proper, making up, and imposing.[3]

> In setting type by hand, the hand compositor, reading from the manuscript copy, sets each line of type in a 'composing stick', a device which holds type in place, letter by letter and line by line. When this stick is full, he slides the completed lines onto a shallow metal tray called a 'galley'.

The galleys, together with any headlines, engravings, or photographs are then 'made up' into pages and locked into 'formes', the type surfaces having been

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[2] On the development of the printing press, see Musson, 'Newspaper Printing', pp.413-20; ibid., TA, pp.96-99; G.R. Isaacs, The Newspaper Printing Press (1931); and Lee, Popular Press, pp.54-57. On the division of labour in the machine room, the tasks performed by the specialised labourers, see Isaacs, Printing Press, pp.59-60; J. Moran, NATSOPA: Seventy-Five Years Later (1964), ch. 1; on conflicts between the semi-skilled and craftsmen in the machine room, see below, ch.V, note 73.

[3] R. Blauner, Alienation and Freedom (Chicago, 1964), p.40.

made as regular as possible. At this point, the formes are carried to the 'stone' to be 'imposed' or arranged into the correct numerical order for printing.[4] Given that a page of type might weigh over one hundred pounds, making up and imposing were considered quite heavy work: where female compositors were employed, their inability to perform these parts of a compositor's job was adduced to justify their lower wages.[5] Even in society houses, however, labourers might be employed to carry the type-filled formes to the press room.[6] Finally, the used formes would be broken up and the type distributed to its appropriate cases; generally all compositors took turns 'dissing', as with the other tasks, though typesetting and making up were often specialised in news offices.[7]

The process of hand composition required considerable intellectual powers from the compositor beyond the manual dexterity necessary for speedy typesetting. The hand 'comp' had to be able not only to read, but also to decipher often illegible handwritten copy, to justify the lines and internal spacing following complex rules specifying the proper spaces between letters, to correct spelling and supply punctuation, and often to design the page layout as well. As John Southward, the foremost technical journalist of the period, put it in a lecture on the limits of mechanical composition in 1890:[8]

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[4] Southward, Practical Printing; H.W. Larkin, Compositors' Work in Printing (1961)

[5] Naylor to Fair Wages Committee, q. 194; William Fraser (Managing Director, Neill and Co., Edinburgh), to ibid., q. 4586.

[6] See the rules of the Manchester Branch of the TA specifying labourers' work in composing rooms, Printers' Register, Jan. 1907.

[7] Southward, Practical Printing, ch.22.

[8] 'Type-Composing Machines of the Past, Present, and Future', paper read before the Balloon Society of Great Britain, 3.10.1890, Southward Collection, St. Bride's Library, London.

> Much more has to be known than is necessary for the typewriter operator...the manual compositor...is not a mere animated machine, picking up type and arranging it in a tool. He is deciphering his copy, spelling the words - for it is seldom that the handwriting is so good as to distinctly indicate the different letters of a word, punctuating them, and probably just before arriving at the end of each line considering how to make a proper division of the word according to etymological rules and printing customs.

The sectoral divisions between newspaper, book, and jobbing printing meant that each type of work required somewhat different skills. According to Southward, "...Book work requires the most education, news work the most dexterity, and jobbing work the most ingenuity and taste".[9] The book hand might be called upon to set matter in foreign languages, or perhaps to arrange tables, (though he would usually be paid extra for such tasks), while the jobbing hand would often be expected to design the layout of a handbill or an advertisement.[10] The newspaper compositor, on the other hand, was primarily occupied with setting 'ordinary matter' - solid copy - at as rapid a pace as possible. Hence compositors trained in newspaper offices were considered less versatile than ordinary compositors: as William Fraser explained to the Fair Wages Committee in 1908:[11]

> There are two classes of printers, one called newspaper hands, who are trained on newspapers and set nothing but solid matter; and properly trained compositors who have been taught to do jobbing, tabular work, and everything.

In London, the stronghold of craft unionism, newspapers were therefore prohibited from taking apprentices; in the provinces, the unions campaigned

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[9] Southward, Practical Printing, p.165.

[10] C. Manby Smith, A Working Man's Way in the World (1853, reprinted 1967), pp.183-88; Fraser to Fair Wages Committee, qs. 4607, 4641, 4653.

[11] Ibid., q. 4641.

strenuously against the production of 'inefficient workmen' through apprenticeships on daily papers.[12] As the former Secretary of the LSC complained in 1850: "what knowledge of his business can that man have who has served seven years apprenticeship on the Times paper?"[13] A correspondent spelled out the threat to the market position of other printers a newspaper apprentice represented: if he secured work in a general printing office after serving his time [14]

> ...and happens to be given plain, straightforward setting, it will be all right; but if, unfortunately, it should be other work - a fancy card, a circular, a piece of rule work, the copy for a pamphlet to set up, make up, impose, and dress the forme, or formes, or be told to do a job on the press, make it ready, and work it off, or in fact to do anything out of the ordinary range of 'compositorial' work, he is then found to be as much at sea as the youngest apprentice. The discovery being made, his services would be dispensed with at the earliest possible moment, and become probably a continuous burden on the funds.

## Engineering

The engineering industry was called into being at the end of the 19th century by the growing demand for machinery in other sectors of the economy, most notably, of course, in cotton textiles. At the centre of the early engineering labour force was a group of highly skilled all-round craftsmen, the

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12 Howe and Waite, LSC, pp.128-43; LTJ Sept.-Oct. 1910.

13 The Times was a non-union house between 1816 and 1914. E. Edwards, 'The Disease and the Remedy', LSC Prize Essay (1850), reprinted in Howe, London Compositor, p.304.

14 TC, Dec. 1887, pp.6-7.

millwrights, whose trade combinations were among the earliest and most powerful in the country.[15] According to Sir William Fairbairn, a leading early Victorian civil engineer, himself apprenticed as a millwright but initially excluded by the millwrights' society from practicing his trade in London:[16]

> The millwright of former days was to a great extent the sole representative of mechanical art...he was an itinerant engineer and mechanic of high reputation. He could handle the axe, the hammer and the plane with equal skill and precision; he could turn, bore, or forge with the despatch of one brought up to these trades and he could set out and cut furrows of a millstone with an accuracy equal or superior to that of the miller himself....Generally he was a fair mathematician, knew something of geometry, levelling and mensuration, and in some cases possessed a very competent knowledge of practical mathematics. He could draw in plan and section, and could construct buildings, conduits, or water courses in all forms and under all conditions required in his professional practice. He could build bridges, cut canals and perform a variety of work now done by civil engineers.

With the great increase in demand for engineering products beginning in in the 1820s, the position of the millwright, with his high wages, restrictive trade practices, and laborious hand methods, became more and more of an obstacle to the expansion of engineering production. Employers accordingly sought to recruit workers from other metal working trades - who became known as 'engineers' - and to introduce new labour-saving machinery - notably the slide-rest lathe and planing, slotting, drilling, shaping, and boring machines - to displace the

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15 Jefferys, Engineers, pp.9-12; Burgess, 'Technological Change', pp.218-21; I. Prothero, Artisans, especially pp.31, 43, and 57-9. On the emergence of the millwright from the ranks of itinerant woodworkers constructing and maintaining flour mills, see J. Tann, 'The Textile Millwright in the Early Industrial Revolution', Textile History 5 (1974).

16 Treatise on Mills and Millwork (4th ed., 1878), quoted by Jefferys, Engineers, pp.9-10.

exigent millwrights. Already in 1824, a leading London employer could claim that:[17]

> Engineers have become millwrights, and we make our machines so much better and cheaper, that the trade that used to scoff and spurn at the name of engineer are obliged to take up the name and conduct their business by the engineers' economy.

During the years that followed millwrights sought to defend their position within the emerging 'engineers' economy' by opposing piecework, systematic overtime, the introduction of non-apprenticed men into the trade, and by creating new trade societies, of which the most important was the Journeymen Steam Engine Makers' Society (JSEM) founded in 1826. But with demand for engineering products rising more rapidly between 1835 and 1850 than during any period in the industry's subsequent history, these efforts were bound to bring the millwrights into collision with their employers. A series of conflicts during the late 1840s and early 50s culminated in a lockout of the newly formed ASE by a coalition of London and Lancashire employers, sparked by a demand by craftsmen at the Oldham works of Hibbert and Platt's for the dismissal of 'illegal men' working machines. After a month, the engineering craftsmen were defeated, largely as a result of the increased supply of labour in the industry, and forced to sign the 'document' renouncing trade unionism; employers such as James Nasmyth took advantage of the stoppage in the following manner:[18]

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17 A. Galloway to SC on Artisans and Machinery, quoted in ibid., p.21.

18 S. Smiles (ed.), James Nasmyth, Engineer: An Autobiography (1889), p.299, quoted in K. Burgess, 'Trade Union Policy and the 1852 Lockout in the British Engineering Industry', International Review of Social History 17 (1972), p.659. On the transformation of the engineering industry during the first half of the 19th century and the 1852 lockout, see also ibid., 'Technological Change' and Industrial Relations, pp.5-24; Jefferys, Engineers, pp.12-42.

> We added...to the number of intelligent labourers, advanced them to the places our Unionist workmen had left...I largely increased the number of self-acting machines, and gave a still greater amount of employment to my unbound apprentices.

Summarising the transformation of the division of labour, Fairbairn argued that in the new engineering workshops,[19]

> ...the designing and direction of the work passed away from the hands of the workmen into those of the master and his office assistants. This led to a division of labour; men of general knowledge were only exceptionally required as foremen or out-door superintendants; and the artificers became, in process of time, little more than attendants on the machine.

Nasmyth went even further:[20]

> The machine tools when in action did not require a skilled workman to guide or watch them; all that was necessary to superintend them was a well-selected labourer. The self-acting machine tools already possessed the requisite ability to plane, to turn, to polish, and to execute the work, when firmly placed in situ. The work merely required to be shifted from time to time, and carefully fixed for another action of the machine...

Some historians, notably John Foster, have taken these judgments, together with fears expressed by skilled workers at the time of the 1852 lockout, at face value, arguing that after 1852, "independent craft autonomy in the engineering industry more or less came to an end".[21] In the event, however, the hopes of employers and fears of the craftsmen that the employers' victory would lead to a low-paid, unskilled, and unorganised labour force supervised

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19 W. Pole (ed.), The Life of Sir William Fairbairn (1877), p.47, quoted in Burgess, Technological Change, pp.229-30.

20 Smiles, Nasmyth, p.210.

21 Foster, Class Struggle, p.227; cf. also Stedman Jones, 'Class Struggle'. For apocalyptic predictions by skilled workers about the implications of new machine tools in the early 1850s, see Burgess, 'Trade Union Policy'.

by a small number of skilled men proved illusory. Though according to the census classifications in 1861 skilled workers constituted only 40% of the engineering labour force in Oldham, home of Platt's, the most advanced firm of the period, Jefferys estimates on the basis of five representative company paybooks that skilled workers comprised 75% of the engineering labour force nationally. As late as 1914 the EEF classified 60% of the labour force in Federated firms as skilled.[22] In 1892, Andrew Noble reported to the Royal Commission on Labour that skilled workers constituted 60% of the workers at Armstrong's Elswick works, surely the largest and most highly rationalised engineering enterprise of the period.[23] At Platt's Oldham works, with 10,000 employees the largest textile engineering firm in the world, Paul de Rousiers in the early 1890s noted the overwhelmingly skilled character of the labour force:[24]

> Every workman is a specialist...not a single woman is employed by the firm.... There is no room for occasional hands or casuals who take up any kind of work today to drop it for something else tomorrow.... Except the porters, who are superseded as far as possible by lifts and locomotives, almost every individual employed by the firm is a skilled workman.

Not only were the new machine tools technically incapable of displacing the skilled craftsman on a significant range of engineering tasks, but the demand for craft skills in the industry was further enhanced by the discovery that more sophisticated products could be made with the machines than with hand tools, and by the limited opportunities for standardised production afforded by the market. As Jefferys, the official historian of the ASE argued

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[22] Foster, Class Struggle, pp.327-28; M. and J.B. Jefferys, 'The Wages, Hours and Trade Customs of the Skilled Engineer in 1861', Economic History Review 1st ser., 17 (1947), p.30; Jefferys, Engineers, p.146.

[23] Noble to RC on Labour, Group A, qs. 25, 485-86.

[24] P. de Rousiers, The Labour Question in Britain (1896), pp.254-55.

> It was true that the jobs which had required a high degree of skill and experience to produce on a hand lathe or with a chisel and file, were usually comfortably within the ability of a youth or less skilled man on a 'go-cart' or planer. And as long as the demands on the engineering industry were similar, except in number, with those made in the 'handicraft' period, there was some justification for the employers' high hopes. But industry was not to remain satisfied for long with the hand tool standards of quality and speed of production. The new machines were capable of an entirely different range of work, and with the demand for larger jobs, greater accuracy, intricacy and speed, the operator, youth, or unskilled man, had to develop a range of skill to match the capabilities of the machines or be replaced by the man who was so able. Furthermore, these machines, revolutionary as they were in comparison with earlier methods, still left the major portion of the engineering work, from patternmaking to fitting and erecting, in the hands of the skilled worker with hand tools.[25]

Similarly, Saul has claimed that even at the end of the 19th century, most "textile machinery parts were not interchangeable without a moderate amount of fitting."[26]

The new division of labour that emerged within these technical limits after 1852 bore a complex relation to that which had prevailed before 1830. We can best understand the millwright's craft as a hierarchy of skills, with the intellectual components - planning, drafting, designing, and model building - at the top; sophisticated lathe work (turning) and precise assembling (fitting) somewhat lower; and simple operations such as rough turning, planing, drilling, boring, slotting, and shaping at the bottom. The introduction of the new tools - slide-rest lathes, planers, etc. - primarily affected the lowest set of skills: these operations could now be performed by unapprenticed workers under the supervision of more highly skilled foremen and tool setters. The highest set of skills was affected only to a limited degree, insofar as a certain measure of direction was appropriated by management and draughtsmen

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[25] Jefferys, Engineers, p.16.

[26] Saul, 'Mechanical Engineering', p.114.

emerged as a separate category of technicians; workers able to build and design models and prototypes known as patternmakers emerged as the most highly skilled engineering manual workers of the period.[27]

As for the intermediary skills, those aspects of the millwright's craft that could not be routinised by the new processes gave rise to new, more specialised groups of craftsmen, the fitters and the turners. These workers, many of whom had served a general apprenticeship, drew upon a modicum of abstract knowledge of engineering technology to perform their particular tasks. The turner used his abstract understanding to execute complex operations on the lathe and to adapt general purpose tools to specific tasks: the fitter, to make his skill with the file compensate for the inability of the other tools to produce parts that fit together perfectly; both might be called upon to read drawings, to design special tools or fixtures, to grind their own tools, and to set their feeds and speeds.[28] The fitters and turners emerged during the second half of the 19th century the largest single category of engineering labour - almost twice the size of the next largest category in 1891 - and formed a majority of the ASE right through the 1920s.[29]

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27 For a careful description of the work of patternmakers and draftsmen with special reference to shipbuilding, see Reid, Shipbuilding, pp.75-82; on the former, cf. also W. Mosses, A History of the United Patternmakers' Association, 1872-1922 (1922). The special interests and organisation of the pattern-makers in relation to the ASE will be considered below, pp.122-25.

28 RC on Labour, Group A, Digest of Evidence, P.P. 1893-4, XXXII, p.107; J.W.F. Rowe, Wages in Practice and Theory (1928), app.III.

29 Jefferys, Engineers, p.51; Burgess, Industrial Relations. The 1911 Census shows the following figures for the numbers of fitters and turners, though changes in classification resulted in an artificial drop between 1901 and 1911 as 14,271 labourers were separated out.

| | |
|---|---|
| 1881 | 64,663 |
| 1891 | 87,510 |
| 1901 | 159,173 |
| 1911 | 154,167 |

Census of Population, 1911, P.P. 1913, LXXVIII, Table 26.

The decomposition of the millwright's skills and the rise of the engineering and shipbuilding industries also called into being a host of metal trades which do not fall into the tripartite schema. These groups include blacksmiths, the various shipbuilding crafts organised by the Boilermakers, foundry workers or moulders, sheet metal workers, brass founders and finishers, coppersmiths, and plumbers. In addition to fitters and turners, the ASE sought to organise the patternmakers and the smiths, who also formed their own craft unions, while a second union, the Steam Engine Makers' Society (SEMS) catered for much the same class of workmen as did the ASE itself. At the same time the ASE was engaged in demarcation disputes with most of the other metal trades; these will be considered in the next chapter. In this thesis, we will be essentially concerned with the fitters and turners of the ASE and the SEMS, and with the labourers and handymen occupying positions below them in the division of labour; other metal trades, including the smiths and the patternmakers will be considered mainly insofar as they affected the fitters and turners.[30]

The lowest grade of skills opened a path into the engineering workshops for a new category of worker, the 'handyman' or 'machinist'. Originally a labourer, often recruited from other industries or from agriculture, the handyman might begin on a simple machine and work his way up to more complex ones, much like his counterpart in the printing machine room. As John Price, the General Manager of Palmer's Shipyards and Engineering Works in Jarrow noted in 1886:

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[30] For an excellent account of the division of labour in shipbuilding, which contains much useful material on the patternmakers and smiths in relation to the ASE, see Reid, Shipbuilding, pp.88-92, 99-106, 156-72.

[31] Price to Royal Commission on the Depression of Trade and Industry, Third Report (C. 4797), PP 1886, XXIII, q. 10,971.

Q. Is there much movement in bringing forward unskilled labour to skilled labour?

A. Yes; a drilling machine man is occasionally moved up to a slotting machine or a planing machine, and a planing machine man ultimately in some cases, but not frequently, becomes a lathe man.

By 1908, after another major wave of technical innovation, this process had become significant enough for Sir Benjamin Browne, a leading Northeast Coast engineering employer to observe:[32]

> In our trade a semi-skilled man is the man who was on the floor, that is a shop labourer. If he is any good at all he is taken to a small machine, say a drilling machine; then if he is good at that he goes to a planing machine, and so onto a slotting machine and other things, but not onto lathe work usually; planing, drilling, and slotting are generally worked by semi-skilled men, who get higher and higher wages. They have a trades union of their own, the same as the engineers have, and a very good union it is; they get very good wages, not so good as the engineers, but better than the labourer gets.

Employers and Trade Unionists were agreed that the principal difference between the apprenticed craftsman and the handyman was the far greater versatility of the former: on a given machine there might be little to choose between them, except their wage rates. Thus during the negotiations between the ASE and the EEF on the machine question in 1897, Browne noted for the employers that,[33]

> ...The advantage of a skilled man is this: it is not perhaps a very difficult thing to train a man who has not had a full training to do one part of a process, but when you want to put him on another process, then the man has to learn it all over again.

The General Secretary of the ASE for his part admitted that,[34]

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32 RC on The Poor Laws, q. 86,334. It should be noted that Hawthorne, Leslie and Co., was a marine and railway engineering firm employing the highest class of skilled labour, so that Browne's comments would understate the extent of such promotions. Cf. his remarks quoted below,p.201,fn.64, see also the description of machinemen at Elswick in the letter from Col. Dyer to B. Potter, Webb.Coll. EA XXI, f.18; and the chapter on 'the handyman' in Anon., Working Men and Women (187

33 Verbatim Report of a Conference between the ASE and the EEF on the Machine Question, Apr. 1897, p.14. See also his evidence to the RC on the Poor Laws q. 86,333.

34 Machine Conference, 1897, p.4.

> We know very well that there are men who are attending to machines and have been doing so for a long time; and although they have not served an apprenticeship, we are prepared to admit that they are just as skilled as we are on the particular machines that they are working.

But another ASE representative hastened to reassert the linchpin of the skilled men's case:[35]

> We contend that by serving five years in the trade, we are giving you a man whom you can get more from than the unskilled man. He is supposed to have a certain amount of intelligence to enable him to learn the trade through his apprenticeship, and we contend that with the skilled man during his apprenticeship, and by subsequent work with these and other machines, we are supplying you with a man who is more capable of development than an unskilled man.

As one might expect, therefore, the nature of the work was the chief factor determining the extent of less skilled labour; where there was greatest scope for repetition production, handymen and machinists were most in evidence:[36]

> In places like the Elswick works where they make ammunition and so on, they employ a very large number of unskilled men, and even a large number of girls. If you come to the making of machinery for the textile trades, and so on, like they do all over Lancashire...there you get great repetition, and you have then a very large proportion of unskilled....

This point emerges quite clearly from a comparison of the relative proportion of skilled to unskilled men in the various departments of the Woolwick Arsenal. In June 1886, the Laboratory, which concentrated on the mass production of shells, employed 2988 labourers and 1422 boys to 1119 'artificers'; the Gun Factory, where the work was more varied, employed the same number of artificers, but only 534 labourers and 134 boys.[37]

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35 Ibid., p.14.

36 Browne to RC on the Poor Laws, q. 86, 227; see also de Rousiers, Trade-unionisme, p.258.

37 Morley Committee, app.IV; on the arsenal itself, see Crossick, Artisan Elite, pp.81-87.

In large works such as railway factories or shipyards, another class of specialised labourer known as 'fitters' assistants' might be employed. The Royal Commission on Labour defined 'fitters' helpers' as:[38]

> ...skilled labourers who assist the mechanic fitter by performing part of the manual, while the fitter does the technical, part of the work. A fitter's helper must be a trained man and have a rough practical knowledge of the work, otherwise two fitters would be required to perform one piece of work.

Some idea of the proportions of craftsmen to skilled labourers in such cases is given by the figures submitted by the Chairman of Harland and Wolff's Belfast shipyards to the Webbs in 1892, which revealed that the firm employed 364 fitters and 72 apprentices to 448 fitters' assistants; in the machine shop 120 turners worked alongside 129 machinemen and boys. In some enterprises, these proportions might fluctuate with the business cycle, as at Palmer's Jarrow works, where the ratio of fitters to machinemen stood at 121 to 164 in 1865, 219 to 101 in 1873, and 245 to 170 in 1882.[39]

While the new groups of engineering craftsmen expanded and prospered in the decades of Britain's dominance in world markets after mid-century, they did not escape the effects of the general processes of specialisation in major sectors of the industry: As William Allan, General Secretary of the ASE noted in 1867:[40]

> Some 20 years ago when we had not so many machines introduced... men were considered to be better general workmen, and could do different things where they are now confined to one or two branches.

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38 R.C. Labour, Group A, Digest of Evidence, p.107.

39 E. Harland to Webbs, Coll. EA XV, f. 1; Price to RC on the Depression, Second Report (C. 4715-I), P.P. 1886, XXII, app. IV, Table 1. On the use of fitters' assistants in railway shops, see Webb Coll., EA XVI, f. 6, pp.54-61.

40 Quoted in Jefferys, Engineers, p.57.

Similarly, the more exclusive SEMS observed in its Annual Report for 1876:[41]

> There are members of our own trade who know little of the relative parts of an engine, only what they read of or are told by others, no matter how anxious they may be to know, for the rules of the establishment in which they are employed are often of such a stringent nature that they are not allowed to move from their bench or lathe in working hours, whilst they put to one class of work when they commence, and never remove from it so long as they remain at that particular firm....

By 1892, the Royal Commission on Labour could state categorically that,[42]

> Fitters are divided into two classes, 'engine-fitters' and 'machine-fitters', the former being engaged exclusively on the work of fitting engines, and the latter performing all other branches of fitting.

In particular sectors, skilled workers might even find themselves dependent on the labour market of a particular plant, whether because specialisation put their skills at a premium in that plant or because it had stripped them of their more general skills. Paul de Rousiers in the early 1890s noted the golden chains that bound skilled engineers to the textile machinery firm of Platt's in Oldham:[43]

> In 1851 at the end of an important strike the union was entirely crushed, and since then Messrs. Platt have forbidden the formation of any such union among their employees. When the men have any suggestions to make, they send a deputation to their masters who always hear it with attention.... The absolute position of the masters, so exceptional in the labour world is explained by the unique position of the firm. Although it is not the only English house of the kind, it is by far the most important. It has no rival in the neighbourhood of Oldham, and has in fact, a monopoly of this branch of the industry, which it has raised to its present importance. Workmen who left would find great difficulty disposing of their special skills on equally favourable terms. It is their highly-specialised character that makes them so dependent on the great firm which directs and employs them.

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41 SEMS AR 1876, quoted in Reid, Shipbuilding, p.171.

42 RC on Labour, Group A, Digest of Evidence, p.107.

43 P. de Rousiers, Labour Question, pp.255-56. My emphasis. de Rousiers was not entirely correct about trade unionism at Platt's; by 1866 the firm was prepared to discuss reductions of hours with ASE representatives, though it is unclear whether its employees were union members during this period. See Jefferys, Engineers, p.69.

So extreme a dependence on the labour market of a single firm was confined on the whole to large isolated works like those of the railway companies at Crewe, Derby, and Swindon, or to the Woolwich Arsenal, which offered special benefits to its workers; even in these cases, however, such dependence was more characteristic of the handyman than of the craftsman, whatever the real state of the latter's skills. Thus a local ASE official at Crewe explained the failure of the numerous machinemen to organise themselves:[44]

> It is quite impossible to get these men to form and maintain a trade union. Many of them are men brought in from rural districts and the wages they are receiving are far above anything they have become accustomed to. Then also there is absolutely nothing else in the town for them to do if they leave or get discharged from the Railway works, and to such men the idea of going to another town to seek work is very remote and fraught with many terrors.

As de Rousiers himself went on to point out, in most sectors of engineering craftsmen moved about quite freely from employer to employer; the surviving autobiographies of engineering craftsmen confirm that such mobility remained the norm well into the 20th century.[45]

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44 Webb Coll. EA XVII, f. 3; for a similar point about Derby, see ibid., EA XVI, f. 6, pp.58-61; on Swindon, Williams, Railway Factory, pp.275-86.

45 de Rousiers, Labour Question, pp.266-67; W.F. Watson, Machines and Men: The Autobiography of an Itinerant Mechanic (1935); P. Taylor, The Autobiography of Peter Taylor (Paisley, 1903); J.T. Murphy, New Horizons (1932); G.N. Barnes, From Workshop to War Cabinet (1924); D. Kirkwood, My Life of Revolt (1935); W.G. Riddell, The Thankless Years (1948).

## II. The Inner and Social Life of the Workshop and the Framework of Craft Regulation

> There are traditions, customs, and usages interwoven with, and indeed in great measure constituting, the inner and social life of the workshops, a knowledge of which is as essential to the comfort of those whose lot is cast among them, as technical proficiency is necessary to obtaining or retaining employment.

### The Rationale of Craft Regulation

As Thomas Wright pointed out over a century ago, a technical description of work captures only a fraction of the worker's experience in the organisation of production. As we saw in the previous section, it is impossible to present even a schematic description of the division of labour in a Victorian engineering workshop without reference to conflicts between skilled workers and their employers; even in the less technically dynamic printing industry the aspirations of craftsmen to regulate the conditions of the trade inevitably played a constitutive role in the division of labour itself. Nineteenth century engineers and compositors - like all workers who consider themselves craftsmen - sought to control the conditions under which they worked down to the most minute details, on the basis of an elaborate moral code in which, as we noted in the introduction, their conception of their collective identity and their definition of their material interests were inextricably bound together. Skilled workers characteristically define themselves as possessing practical knowledge indispensible to production, and consequently seek to force their employers to organise production as if this would always be the case, regardless of the intervention of fluctuating market conditions or of technical change. Craftsmen then as now demanded from their employers a recognised and autonomous place in the division

of labour, with attendent material privileges, on the basis of their membership of a social group, the craft community (ideally defined by the serving of an apprenticeship), independent of the transitory market value of their skills.[46]

Craftsmen's conception of their proper place within the division of labour gave rise to an acute sense of rights and entitlements, codified in trade customs and regulations - the common law of the workshop - whose enforcement was the primary task of their formal and informal organisations. The clearest formulation of these claims appears in an artisan newspaper of the 1820s:[47]

> Most well regulated shops are governed internally by a particular code of laws, for the maintenance of justice and good order among the men, and also for the prevention of such persons exercising their employment who have no just claim to it - a jealousy which equity allows; for...every artisan and operator who has been in bondage for seven years, and who frequently for that time endures complete privation of his liberty, chiefly in order that he may afterwards enjoy a superior right to a trade, is as much entitled to stand forward for his prerogative, and to use every means in his power for the support of the same, as the monarch has to the throne. It is well known among mechanics, that there are men who have but an indifferent knowledge of the practical part of the business, and who will offer their services to the master-tradesman at reduced wages, to obtain employment till they become more perfect in the art, often at the great injury of the regular operator.
>
> Now, as there are no constitutional laws to protect such encroachments on their rights, they have established shop-laws among themselves, which they attend to with all the deference that could be shown to any legislative enactment.
>
> When a mechanic who is a stranger in a shop is first engaged, his fellow workmen endeavour to ascertain whether he has a proper claim to the business he professes. If there is any doubt, an objection is made to his footing, till it is satisfactorily explained; and if he fails to do so, he is then considered as an invader of their rights, and immediately (to use their own phrase) they send him to Coventry.... He is likewise never spoken to by his shopmates, but obliged to experience practical jokes and vexatious insults, which generally terminate by the man being obliged to leave the shop.

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46 See the discussion in the Introduction.

47 Mechanics' Magazine, 20.12.1823, quoted by Prothero, Artisans, pp.34-35.

> A trial is generally proceeded in after the following manner: The oldest workman in the establishment presides as the judge, and for this purpose he is provided with a full-bottomed wig, when, with all the earnestness and gravity imaginable, he fills his important office. A jury is impanelled from among the men. After the plaintiff and defendent have selected their counsel (for there is usually a Demosthenes and a Cicero to be found even among Cyclops), they proceed after the form of a King's Bench trial, and decide agreeably to the verdict, which is generally for a trifling fine as damages....

While the development of the division of labour and the emergence of trade unionism and collective bargaining on a large scale inevitably entailed modifications in the institutional forms of craft regulation, in both the engineering and printing industries there is a substantial continuity throughout the 19th century and beyond, not only in the rhetorical expression of craft aspirations but also to an important extent in their practical embodiment. The well known preamble to the ASE rule book, adopted in 1864 but still in use at the turn of the century, provides a striking illustration of the rhetorical continuity, with appropriate shifts from a monarchical to a meritocratic idiom:[48]

> If constrained to make restrictions against the admission into our trade of those who have not earned a right by a probationary servitude, we do so, knowing that such encroachments are productive of evil, and when persevered in unchecked, result in reducing the condition of the artisan to that of the unskilled labourer, and confer no permanent advantage on those admitted. It is our duty, then, to exercise the same care and watchfulness over that in which we have a vested interest, as the physician does who holds a diploma, or the author who is protected by a copyright.

Similarly, during the 1897 conference on the machine question, the General Secretary of the ASE observed that; "If the employers say they have a property in the machines, we might just as well say we have a property in our skill and our labour."[49]

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48 S. and B. Webb, Industrial Democracy (1902 ed.), pp.469-70. A similar formulation may be found in the rules of the ASE's predecessor, the Journeymen Steam Engine Makers' Society, see ibid., pp.563-64.

49 Machine Conference 1897, p.53.

Wright's account of the socialisation of apprentices in a mid-19th century engineering workshop - the process whereby they discover that their place in the social order of the workshop is inseparable from the technical mastery of their craft - provides the best introduction to the complex character of craft regulation.[50]

> When an apprentice enters a shop, he will in all probability be taught to 'keep nix' before he is told the names of the tools,...
>
> The men of every trade speak of their trade among themselves as the trade, and this he the apprentice learns in time to do, and he is taught both by the precept and example of his mates, that he must respect the trade and its written and unwritten laws, and that in any matter affecting the trade generally he must sacrifice personal interest or private opinion, to what the trade has rightly or wrongly ruled is for the general good... He will hear, with commendable trade horror, of the existence of a proscribed and hated race of beings called nobsticks or black sheep, and he will be taught, in effect, that whenever he meets one of these obnoxious creatures - wretches in human form, who never having learnt the craft in a legitimate manner, are guilty of trying to get a living by working at it, or who duly having acquired their craftsmanship, presume to exercise it under circumstances objectionable to the trade - it will be his duty to 'strike the caitiff down'....
>
> He will learn at what times and under what circumstances he will be justified in demanding and holding out for 'walking money' - money claimed in consideration of men being sent to work at such a distance from the shop as necessitates their rising earlier in the morning and getting home later in the evening than usual; or 'dirty money' - money demanded by men who are put upon repairs, or other work that involves extra wear and tear of clothes; and on what kinds of jobs it will be advisable to 'kick' the master for 'allowance' - allowance being drink or money to get drink, asked for by men who are employed upon work requiring an unusual degree of physical exertion, or that has to be carried on in very hot or very cold places, or upon the successful completion of any unusually large or difficult piece of work. He will learn exactly how far he may go in doing any work that does not strictly fall within his own branch of trade; what rate of payment to demand for overtime under various circumstances; with whom he may or may not work; in what jobs he may demand or object to the assistance of a labourer, and a variety of other useful matters pertaining to trade and workshop etiquette....

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50 Wright, Working Classes, pp.84-5, 103-4. In this passage, the term 'keeping nix',"consists in keeping a bright lookout for the approach of managers or foremen, so as to be able to give prompt and timely notice to men who may by skulking, or having a sly read or smoke, or who may be engaged on "corporation work" - that is, work of their own." Ibid., p.85.

> He will be taught to consider the intimation 'he's in the trade', on all sufficient reason for extending the hand of friendship to all fellow craftsmen, irrespective of position and appearance; and he will find that the greatest kindness is extended to a brother of the craft at the time that he stands most in need of it - namely, when he is out of work; and he will see that whenever special misfortune overtakes a man, his shopmates are always prepared to enter into a subscription to relieve his wants, so far as a little money will do so.

As will be apparent from this description, the aims of craft regulation, like craftsmen's conception of themselves, were at once economic and moral in character. To a certain extent, as Carter Goodrich observed, the apparatus of craft regulation can be seen as "control as a bulwark of wages", a means to maintain an adequate level of remuneration. But, as Goodrich went on to observe, much of this regulation sought to protect the craftman's dignity, autonomy, and non-instrumental relation to his work, as ends in themselves, while reinforcing the solidarity of the craft community from which his identity flowed.[51] Thus, for example, the rejection of supervision involved in 'keeping nix' was both an assertion of the skilled workers' dignity as independent and competent craftsmen, and a defence of their market position by reserving to themselves information about the production process and resisting any attempts to speed up their work. Because skilled workers' claim for insulation from the vagaries of the labour market and for differential treatment to that accorded other workers rested on their prior claim to possess distinctive qualities of inventiveness, reliability, and technical mastery, the defence of their material interests was inseparable from their self-understanding as craftsmen. Nor should the affirmation of this identity be understood simply as an instrumental strategy for the protection of their market position, as there are numerous instances in which skilled workers

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[51] C. Goodrich, The Frontier of Control (1920, reprinted 1975), pp.20 ff.

rejected opportunities to increase their individual earnings at the expense of their collective values and interests: the most notable case in point was the bonus systems bitterly resisted by both engineers and compositors at the turn of the century as subversive of their autonomy, the quality of their work, and of the solidarity of the craft community through the promotion of selfishness.[52]

This interpenetration of economic and moral concerns can be seen as well in most of the principal objects of craft regulation. The control of apprenticeship, for example, was on the one hand a means of regulating the labour market by restricting the supply of labour, but on the other such control was essential to assure that young craftsmen received adequate technical training, and more importantly as we have seen, that they imbibed the values of the craft community. Likewise the craftsmen's attempts to exclude outsiders from their work represented both a market strategy and an affirmation of their distinctive identity and capacities. Similarly, the rules for work sharing and protection of casuals among the compositors, and the rules against sub-contracting ('piece-mastering') among the engineers were designed to protect both the living standards of the collectivity and its solidarity by ensuring that no fraction of the group fell victim to special exploitation. Even the standard rate, the linchpin of regulation of wages and the source of collective bargaining, can be seen in this light, insofar as it set minimum standards for all members of the craft community, whatever the individual market values of their skills. (The standard rate did not of course proscribe equality of earnings, since, as trade unionists were fond of pointing out, employers were free to pay any individual worker more; in practice, however, it doubled as minimum and maximum for most workers on time rates.)

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[52] See the conclusions of the TUC Joint Committee's Report on the Premium Bonus System (Manchester, 1910).

As the preceeding quotations suggest, the internal egalitarianism and solidarity of the craft community had as its obverse a discriminatory and exclusive attitude toward outsiders, especially labourers, but also to a significant extent apprenticed craftsmen from other trades, as the numerous demarcation disputes in engineering and shipbuilding demonstrate. Wright captured the situation well when he observed in 1873 that,[53]

> Between the artisan and the unskilled labourer a gulf is fixed. While the former resents the spirit in which he believes the followers of genteel occupations look down upon him, he in his turn looks down upon the labourer. The artisan creed with regard to the labourers is, that they are an inferior class, and that they should be made to know and kept in their place.

Robert Knight, General Secretary of the Boilermakers, confirmed Wright's description of artisan attitudes when in response to charges of conflicts of interest between his members and those of the Tyneside and National Labour Union (an organisation which included many platers' helpers), he told the Royal Commission on Labour:[54]

> There ought not to be if we could only get the labourers to keep their places.... The plater is the mechanic and as a matter of course the helper ought to be subservient and do as the mechanic tells him.

The anonymous author of Working Men and Women (1879) put these points even more vigorously:

> There is no place in which class distinctions are more sharply defined, or strongly, or, if need be, violently maintained, than in the workshop. Evil would befall any labourer who acted upon even a tacit assumption that he was the social equal of the artisan - if, for instance, he added himself unbidden to a group of the skilled hands of the shop who were just chatting about things in general or even put his oar into a conversation that they might be carrying on in his full hearing. Whenever he is admitted upon an apparently equal footing it is the toleration and condescension of the artisan, not the real equality of the labourer, that is to be taken as understood.

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53 T. Wright, Our New Masters (1873), pp.5-6.

54 RC on Labour, Group A, q. 20,801-2.

Lest one think that such phenomena were confined to the mid-19th century, a non-apprenticed compositor's autobiographical reflections on 'Snobbery in the Factory', written in the early 1930s, is instructive:[55]

> In the factory, workmen are segregated into classes, just as in the social sphere people are segregated according to breeding or income. But the standard by which the workman judges his fellows is quite different from that which obtains in the world outside his factory doors.
>
> The standard, applied severly, sometimes cruelly, may be summed up in the question, 'Have you been apprenticed to the trade?' Whatever the snobbery which may exist in social circles, it cannot be more rigorously applied than by the apprenticed to the non-apprenticed workman. And whatever the humiliation which less well-off or less well-bred persons may have to undergo from those more exclusively placed, it cannot be deeper than the humiliation of the workman who has no indentures to show his foreman....
>
> Sooner or later the dreaded question, casually uttered, arises: 'Where were you apprenticed?' The hapless non-apprentice may save himself from perdition by a downright lie (his secret always liable to be revealed), or he may confess and be forever scorned of his fellowmen....
>
> 'Improver' is the factory's stigma, just as 'outsider' is society's stigma upon one of its ostracised members. 'Amateur', applied occasionally to an artisan by his workmates, is perhaps an even greater insult.[56]

Wherever craft regulation persisted to a significant degree into the 20th century with it persisted the exclusiveness of the craftsman and his antagonism to the non-apprenticed interloper. While the intensity of this reciprocal antagonism during the second half of the 19th century doubtless owed something to the centrality of the perceived (and to a great extent actual) break in the class structure between artisan and labourer, its roots lay in the efforts of craftsmen to defend their position within the division of labour as much against

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55 Working Men and Women, pp.111-12. This quotation, like a number of the preceding ones, has figured extensively in the literature on the labour aristocracy. See for example, R. Harrison, Before the Socialists (1965), pp.27-30, and E.J. Hobsbawm, Labouring Men, p.275.

56 L. Katin, 'A Compositor's Point of View' in C.T. Cramp. ed. The Worker's Point of View: A Symposium (1933), pp.137-39. For a comparable account of the experiences of an improver in engineering, see Watson, Machines and Men, chs.1-2

the encroachments of management as against other workers, rather than from a cultural disdain for the less skilled per se. The most cogent exposition of the rationale for craft exclusion along these lines came from T.E. Naylor, General Secretary of the LSC, defending trade union opposition to the employment of women as compositors at lower rates:

> Q. Would not your argument lead to stereotyping the present form of labour in all departments?
>
> A. ...As an abstract proposition, I would say that the present conditions should be stereotyped rather than that any body of men should be deprived of the right to live.[57]

Since the principle aim of craft regulation was precisely to 'stereotype' the division of labour in conformity with skilled workers' conception of their proper place within it, it is hardly surprising that this should have occurred at the expense of those below (or indeed alongside) as well as above them in the social order of the workshop.

## Workshop Organisation: The Basic Unit of Craft Regulation

The most basic institution involved in the enforcement of craft regulation was the organisation of craftsmen in each workshop. Because the long history of workers' organisation in the printing industry, together with its relative

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[57] Naylor to Fair Wages Committee, q. 195. Cf. also Robert Knight's defence of the platers' refusal to permit their helpers to do certain types of work:

> A. We believe in the old adage of the shoemaker sticking to his last.
>
> Q. Yes, but if you carry that principle very far you would separate the working class into cast-iron divisions and it would be impossible for a man to pass over from the class to which he belonged to another class. Do you think that would be desirable?
>
> A. I do not think it would be desirable for a man of one class to go to another class....

RC on Labour, Group A, qs. 20,807-8.

technical immobility over the centuries, facilitated the emergence of more complex and formal institutional structures than elsewhere, (as well as providing a wealth of evidence) we will focus our analysis of the nature of workshop organisation on printing. At that point we will examine to what extent engineering craftsmen were able to establish practices analogous to those of their counterparts in printing.

The origins of the chapel basic unit of workshop organisation in printing, predate the foundation of trade unions by several centuries: the first detailed description in Moxon's Mechanick Exercises (1685) dates their existence from "time out of mind", while the unions first appeared at the end of the 18th century. The chapels became in principle subordinate components of the wider organisations, while retaining in practice considerable freedom of action, as a glance at Fleet Street today will demonstrate.[58] Moreover the chapels have maintained a remarkable continuity of customs, practices, and functions over the centuries: a sociologist's description of chapel life in Scotland during the 1950s noted many of the same essential features as did 17th and 18th century commentators. Given the fragmentary character of our evidence on chapel life, this continuity justifies inferences from earlier and later accounts to the composing room of the late nineteenth century.[59]

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58 Even in non-union houses chapels often played an important role in regulating production. See the testimony on Eyre and Spottiswoode's in SC on Stationery Contracts, evidence of G. Eyre, J.W. Prussia, and F.G. Geleit; and cf. the description of the pre-war Cambridge University Press in G. Scurfield, A Stickful of Nonpareil (Cambridge, 1956), especially pp.27-28.

59 For selections from the early commentators, see Howe, London Compositor, pp.22-23; the sociologist's account is contained in three articles by A.J.M. Sykes, 'Trade Union Workshop Organisation in the Printing Industry - the Chapel', Human Relations 13(1) 1960,'Unity and Restrictive Practices in the British Printing Industry', Sociological Review, n.s. 8(2) (1960), and 'The Social Cohesion of a Trade Union Workshop Organisation', Sociology 1(2) (1967).

The chapel concerned itself with the defence of the craft community within the workshop against both internal and external threats. Internally, the chapel occupied itself with the promotion of solidarity and cohesion among the workshop community, taking as its basic principle the unity and equality of all craft members in the shop; externally it was responsible for the application of union rules and the enforcement of trade customs (some of which might be peculiar to an individual printing house) against encroachments by employers. In pursuit of its internal objectives the chapel supervised the distribution of tasks and equipment among its members in order to insure that no man found himself placed in an unfairly disadvantageous position. The chapel would, for example, be involved in the rotation of workers between typesetting, making up, imposition, and distribution; would see that essential but scarce supplies of type and rule were not monopolised by a few workmen (a problem in piecework houses); and would ensure that any extra payments were fairly distributed among the members of the 'companionship', (a term for all the craftsmen working together on a single shift; often abbreviated to 'ship').[60]

In a similar but less respectable vein, chapel members might practice restriction of output with various degrees of formality: Charles Manby Smith, whose middle class origins and apprenticeship in a small non-society country shop estranged him from the ethos of the craft community, reports the refusal of his workmates in a London book firm during the 1830s to allow him to earn more than £2 per week regardless of his output; the surplus production simply

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60 Southward, Practical Printing, ch.31; D.F. Schloss, Methods of Industrial Remuneration (1892), p.91; Sykes, 'Workshop Organisation', 'Restrictive Practices', 'Social Cohesion'.

piled up 'on the shelf' to be applied against the following week's stint.[61]

In keeping with its communitarian dimensions, the chapel organised a range of collective festivities: three representative examples are the 'wayzgoose', an annual outing-cum-dinner to which employers and printing firm suppliers were often forced to contribute; 'bienvenu', the obligation of new arrivals to treat their shopmates to drink (a practice known elsewhere as 'footing'; and the celebration of marriages by a procession through the shop during working hours, accompanied by the 'jerry', a loud crashing of tools known in other trades as 'ringing in', and capped by the groom's provision of drink for all.[62]

Chapel decisions were taken by majority vote of the members (confined to society members in 'open' houses) who elected a 'Father of the Chapel' (more or less the equivalent of a convener) and a clerk to record and implement their decisions. To enforce its decisions upon its members the chapel had recourse both to formal and informal sanctions. Formally, it could fine its members for infractions of its rules, a practice known as 'chapelling' (such fines were originally a substitute for beatings, but were apparently declining in frequency

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61 Manby Smith, Working Man's Way, pp.183-89.

62 For marriage processions, see ibid., pp.248-50; for bienvenue and wayzgoose, Howe, London Compositor, pp.22-32; see also the articles by Sykes cited above, and Cannon, Skilled Worker, passim. It seems likely that the importance of drink in chapel life declined after mid-century with the simultaneous development of working class respectability and tighter work discipline; Manby Smith notes an 'improvement' in workshop mores in this respect, as does Wright, but for the persistence of alcoholic consumption during working hours into the 20th century, see the excerpt from a compositor's autobiography in J. Burnett, (ed.), Useful Toil (1974), p.337; Manby Smith, Working Man's Way, p.249; Wright, Working Classes, p.98.

and effectiveness during the second half of the 19th century)[63] - alternatively, it could recommend to the union executive the malfeasant's expulsion, which would result in the loss of accumulated benefits - a powerful threat in the days before the state provided social security - or even of employment if it were a society house. Informally, non-conforming workmen could be 'sent to Coventry' (ostracised) or find their work and tools interfered with in order to drive them from the shop. In most cases of course both types of harassment would be applied in tandem: Manby Smith's co-workers in one shop tormented him until he struck one of them, whereupon he was chapelled to the tune of five shillings and the fine converted into drink; eventually he felt compelled to leave the shop.[64]

Of equal importance was the chapel's place in the larger framework of craft regulation. Through a complex amalgam of collective bargaining, unilateral regulation, and the development of custom and practice in each workshop, compositors and their unions sought with varying degrees of success to control most aspects of printing production, from the supply of labour through its wages, hours, and modes of remuneration, to the quantity and quality of output. Chapels might exercise independent initiative in this struggle on such matters as the division of copy between 'establishment' ('stab' or time) and piece hands, as well as between journeymen and apprentices; or in fixing the dinner hour and other work breaks. At the same time, they were crucial sources of information for union officials on the actual conditions in each shop, and were expected to

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63 Child, Industrial Relations, p.146.

64 Manby Smith, Working Man's Way, pp.161, 186-89; Howe, London Compositor, pp.22-32; Southward, Practical Printing, ch.31; Sykes, 'Social Cohesion'; Musson, TA, pp.125-26; Child, Industrial Relations, pp.143-44.

exercise special vigilance in applying rules on apprenticeshop, working hours, overtime, and casual employment enacted by broader union bodies. Thus the chapels were at once partisans in a perpetual guerilla war aimed at pushing back the 'frontier of control' between craftsmen and their employers on a shop by shop basis, and front-line units when open hostilities erupted: the vast majority of printing disputes during the second half of the 19th century involved only a single firm.[65]

As a result of the transformation of the industry during the first half of the 19th century, workshop institutions created by craftsmen in engineering did not attain the level of formal complexity of the chapels in printing, particularly in their ritual dimension. Nonetheless, as contemporary testimony indicates, Victorian engineers did evolve a set of analogous practices aimed both at reinforcing the solidarity of the craft community and at defending its bargaining position. We have already noted Wright's account of the initiation

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65 Musson, TA, pp.54, 163-64; Child, Industrial Relations, pp.148-52. As the minutes of the TA EC for the early 1890s show, chapel officials attempting to enforce union policies ran a high risk of victimisation. See especially the entry for 2.2.1895 on the Sheffield Telegraph. For the 'frontier of control', see Goodrich, Frontier of Control; on custom and practice, W. Brown, 'A Consideration of Custom and Practice', British Journal of Industrial Relations 10(1) (1972). For a description of the remarkable role of the chapel in regulating production in Fleet Street today, see K. Sisson, Industrial Relations in Fleet Street (Oxford, 1975), p.165:

> The management exercises little or no executive control in the production and maintenance departments in Fleet Street. The first-line managers who are most closely involved with the chapels are not in practice responsible for the management in their departments. In effect theirs is a technical role only. Put simply, the industrial relations manager manages by negotiation, or more specifically, through the payment system. The chapels, for their part, undertake to perform a number of tasks in the manufacturing process. As the preamble to one typical comprehensive agreement states: 'The purpose of this agreement, which covers hours, payments and working arrangements, is to provide a comprehensive production service.'

of the apprentice: through a combination of deliberate instruction, workshop gossip, and practical jokes, the apprentice absorbed the values of the craft community. Foremost among these, as Wright emphasised, was the craftsman's autonomy in relation to his employer, embodied in his freedom to work at his own pace or even on private tasks - 'corporation' work - defended by the practice of 'keeping nix'; W.F. Watson records the continued existence of such private work at the turn of the century.[66]

As in printing, group solidarity was reinforced by communitarian festivities marking the major rites of passage in the craftsman's life cycle: completion of an apprenticeship, arrival in a new shop, and marriage all provided occasions for the payment of 'footings' - treating with drink - by the workman concerned to his shopmates. Marriage in particular was marked by the ceremony of 'ringing in':

> On the occasion of his marriage, a working man takes a few days' holiday, and on the day on which he returns to work does not come to the shop until after breakfast. Then he receives his ovation in the shape of what is technically called a 'ringing in'. Some of his intimates will know on what day he is to return, and at that time on that day everything is got ready for welcoming him. Scouts are placed along the road he has to come, in order to signal his approach, and in the meantime the men and boys in the shop stand, hammer in hand, around boilers, plates of iron suspended from beams, or anything else that comes handy that will give out a good ringing noise when struck. The arrival of the subject of the demonstration is duly announced by the scouts; all stand to their posts, and the instant he enters the shop, strike up a thundering peal... The ringers in each shop, having rung him through their particular department, follow him as he passes out of it, until the whole body of them are assembled in his own shop, and then the peal reaches its grand climax...there are perhaps five or six hundred men, all hammering their best on high or sharp sounding metal.... The ringing in is continued for about five minutes, and then the proceedings are wound up with a hearty cheer.[67]

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66 Wright, Working Classes, pp.83-107; Watson, Machines and Men, pp.21-23. For another account of the initiation of an apprentice, using the same joke of the 'speck in the eye' noted by Wright, see Taylor, Autobiography, pp.36-37.

67 Wright, Working Classes, pp.99-100.

These positive methods for ensuring cohesion among craftsmen were, as in printing, supplemented by negative sanctions against internal dissidents. Wright observed that any workman who entered a shop without paying due respect to its customs and traditions "...would soon find himself in very evil case".[68]

> For him the shop would be 'made hot' - so hot, that as a rule, he would have to leave it; and might thank his planets if he was fortunate enough to escape personal violence.

Even so circumspect a witness as William Allan, the first Secretary of the ASE, testified to the Royal Commission on Trade Union in 1867 about the conduct of ASE members toward non-unionists that:[69]

> If the party had committed himself in some way in connection with the trade, (i.e. had blacklegged or consistently violated trade regulations - JZ) in all probability if he went into a shop we would put him in Coventry.

In large enterprises such as arms or railway factories where managerial efforts to enforce workshop discipline intensified as the century wore on, such communitarian practices might survive at the price of being pushed out of working time itself. In Armstrong's Ordnance Works, for example, craftsmen maintained a newspaper club, but came to work early to read the papers; "At six o'clock the bell rings and the whistles in the shop sound, and business commences".[70] Similarly, at the largely non-unionised Swindon works of the Great Western Railway, ringing in persisted to 1915:

> A crowd of men and boys beat upon any loose plate of metal that will return a large clang - such as lids of tool chests, steel bars, anvils, and sides of coke bunks - and make as much noise as possible.

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68 Ibid., p.84.

69 Royal Commission on the Organisation and Rules of Trade Unions and other Associations, First Report, (3873), P.P. 1867, XXXII, q. 628.

70 Gordon, Foundry, Forge, and Factory, p.34.

But as the observer went on to point out, the beginning of the working day brought such activities to a close:[71]

> This is all over by the time the hooter sounds. With the starting of the shop engine the men fall into work, and the marriage is forgotten by the crowd.

As in printing, workshop organisation played a critical role in the enforcement of craft regulation, serving at the same time as the first stage of bargaining with employers. William Allan noted in 1867 the widespread use of 'shop delegations', ordinarily composed of 3 workmen, to meet with employers; the most successful forward movement between 1852 and 1890, the nine hours movement, had its origins in the actions of shop delegations on the Northeast Coast.[72] Beginning in the 1890s, under the impetus of the growth of piecework and conflicts over technical change and workshop discipline, shop stewards emerged as workshop representatives effecting liasons between District Committees and workers in each shop. On Tyneside by 1890, it was "the custom among the larger trades in the factories and shipyards" to depute shop stewards, and "in some cases vigilance committees" to collect dues and to tell newcomers that "they will have to join or they can't work there".[73] The 1892 ASE Delegate Meeting authorised District Committees to appoint shop stewards responsible for dues collection inspection of pay lines, providing information on workshop conditions, and ensuring that new arrivals presented their union cards or joined up; in Barrow, they were also charged "to keep a careful watch that no other

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71 Williams, Railway Factory, pp.256-57.

72 RC on Trade Unions, qs. 659-60; J. Burnett, The Nine Hours Movement. A History of the Engineers' Strike in Newcastle and Gateshead (Newcastle, 1872).

73 Workman's Times, 28.11.1890, quoted in H. Clegg, A. Fox, and A.F. Thompson, A History of British Trade Unions, 1889-1910, Vol.I, (Oxford, 1964), p.431.

trades encroach on our work".[74] Originally agents of the District Committees, shop stewards quickly assumed a semi-autonomous role, particularly where participation in piecework bargaining became a major part of their functions, since the union's Executive was at first unwilling to permit full-time officials to negotiate piece prices.[75] By 1897 the President of the EEF could complain that on the Northeast Coast,

> In every shop and in every department there have been for years what are known as 'shop stewards', members of the ASE, whose duties are to see that the rules, written and unwritten, of their society are carried out, and he is a brave employer who dare say 'nay' to their demands, which if not granted will be followed by immediately calling out every member of the Society in that shop;

another employers' spokesman writing at the same time referred to the shop stewards as "paid spies of the Society".[76] Allowing for the polemical thrust of the employers' claims, it is clear that by the time of the 1897 lockout shop stewards were playing a role in craft regulation analogous to those of the elected clickers and the Fathers of the Chapel in printing; Jefferys estimates that "by 1909 some shop stewards had been elected in most of the major centres of the industry".[77]

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74 Rules of Barrow District Committees for shop stewards, 1897, quoted by Weekes, ASE, p.10; Jefferys, Engineers, p.137; Hinton, Shop Stewards, pp.79-80.

75 ASE QR June and Dec. 1894; Jefferys, Engineers, p.139; Hinton, Shop Stewards, p.80; G.D.H. Cole, Workshop Organisation (Oxford, 1923), pp.12-15.

76 Col. Dyer, 'The Engineering Dispute: Some Plain Facts About It', Cassier's Magazine, Nov. 1897, pp.97-4; B. Taylor, 'The Machine Question and Eight Hours', ibid., p.97-16.

77 Jefferys, Engineers, p.165; R. Croucher, The ASE and Local Autonomy, 1898-1914, (Warwick M.A. Thesis, 1971).

## Craft Regulation and Collective Bargaining

As many subsequent commentators have noted, the distinction between unilateral regulation and collective bargaining stems from the Webbs' contrast between 'The Method of Mutual Insurance' and 'The Method of Collective Bargaining' in Industrial Democracy (1897). The Webbs believed collective bargaining to be the rational telos toward which trade unionism was developing; like all evolutionists, they judged the present by reference to the future, underestimating accordingly the importance of skilled workers' continuing aspiration to regulate their wages and working conditions on the basis of the customs and moral principles of their craft with minimal interference from employers. Concommitant with the growth of collective bargaining in the Webbs' vision ran the development of centralised administration, beginning with control of finance and extending toward trade policy; subsequent interpreters, notably Clegg, Fox, and Thompson, while paying somewhat greater attention to the persistance of craft control, have followed the Webbs in viewing manifestations of unilateral regulation and local autonomy as backward looking and vestigial.[78]

In reaction to the Webbs, and especially to the infinitely more arid obsession of more recent students of industrial relations with 'formal' organisation and procedure, an alternative 'rank-and-filist' school of interpretation has grown up which locates the essence of craft unionism in the customary control exerted by skilled workers through their informal workshop

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[78] Webbs, Industrial Democracy, pt.I, ch. III; History of Trade Unionism (1920 ed.), ch. 4; Clegg, Fox, and Thompson, Trade Unions, especially pp.302 and 471.

organisations, tending to treat other levels of trade unionism largely as formal and bureaucratic superstructures cut off from the concerns of the membership by the imperatives of collective bargaining.[79]

Arguing from such a rank-and-filist perspective, James Hinton has questioned the basic terms of the debate in relation to the engineering industry:[80]

> The Webbs' categories of Mutual Insurance or Collective Bargaining have tended to set up a false polarity.... They obscured the potential continuity of relatively autonomous local or workshop levels of bargaining, a continuity which the wartime shop stewards' movement was to reveal clearly.... The tradition of local autonomy...far from being an excrescence of unilateral regulation and the Method of Mutual Insurance,...represents the mainstream of the development of collective bargaining from its pre-1870 workshop origins.

Hinton is undoubtedly correct in asserting that the contrast between unilateral regulation and collective bargaining is overdrawn, and his demonstration of the continuous importance of workshop collective bargaining in engineering from the mid-19th century forward is both convincing and applicable to other crafts as well. In seeking, however, to defend engineering craftsmen from the opprobrium attached to unilateral regulation and to locate the core of craft unionism firmly on the shop floor, Hinton has neglected the complementary dimension of the continuity between mutual insurance and collective bargaining: the degree to which the aims of unilateral regulation were extended into the methods of collective bargaining. Just as much of what appeared to be unilateral regulation in the Victorian engineering workshop also involved elements of collective bargaining, so too much of the collective bargaining that occurred outside the workshop partook of the spirit of unilateral regulation, especially prior to the

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79 For references to this school of interpretation see the works cited on p.xi, fn. 49 above.

80 Hinton, Shop Stewards, pp.78-81.

engineering lockout of 1897-8. In this vein, for example, ASE District Committees in the 80s and 90s sought to embody their internal rules and trade customs governing the ratio of apprentices to journeymen and the amount of overtime permissible in collective agreements with employers, albeit with varying degrees of success.[81]

The LSC, the printing union with both the longest experience of collective bargaining and the most effective practice of craft regulation clearly viewed customary rules as complementary to the price lists which were in principle the outcome of collective bargaining; its 1891 scale specifies that,[82]

> In the event of any question arising whereon either the Book or the News Scale is silent or not clearly defined, such questions shall be governed by the custom of the trade (if any) or decided by mutual agreement; it being understood that for work of an exceptional character the compositor is entitled to charge such special rates as will adequately remunerate him for the time occupied on the work.

Similarly, William Allan, in setting out the forms of regulation available to the ASE, described a continuum extending from the determination of the standard rate, in which consultation with employers played a significant role, to union rules (such as those against piece-mastering) which applied unilaterally to the membership, to trade customs (such as restriction of apprenticeship) which branches or districts enforced where they could. The difference between these forms of regulation was evidently one of degree rather than kind, depending on the local power of the union rather than on its aspirations.[83]

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81 For instances of agreements on apprenticeship, see Webb Coll. EA XVI, f. 6, pp.42-53; de Rousiers, Trade-unionisme, p.275; ASE MJ & R, Oct. 1899; RC on Depression, Second Report, submissions of ASE Hartlepool Branch, App.II, p.10; and ASE QR June 1894. On overtime limits see de Rousiers, Trade-unionisme, p.281, and ASE AR 1892 and 1894; on collective bargaining, Burgess, Industrial Relations, pp.47-48.

82 Reprinted in Howe, London Compositor, p.461.

83 RC on Trade Unions, qs. 685, 743-82, 905-6.

As a result of differences in institutional structures and in the history of relations between skilled workers and employers, the framework of craft regulation in the second half of the 19th century varied considerably, not only between printing and engineering, but also among the three regional typographical unions. Indeed, the most striking difference was that between the LSC on the one hand and the Typographical Association (TA) and the Scottish Typographical Association (STA) on the other. In London, the basic component of craft regulation, the London Scale of Prices, emerged during the first decade of the 19th century as the outcome of collective bargaining between the LSC and a committee of master printers. This scale, which governed book and jobbing work, established an elaborate set of piece prices for different classes of work and sizes of type, including a range of tasks subject to 'extra' charges. With the addition of a minimum wage for stab hands and a maximum working week during the 1830s the London Scale remained essentially unaltered until 1891, despite wage advances in 1866 and 1872.[84]

A separate news scale, established in 1820 and recast in 1868, took account of the special conditions of newspaper work and the superior bargaining position of newspaper compositors, who had been organised separately until 1854. More detailed than the book scale, the news scale not only fixed the wages and hours of the compositor on piece and stab work, specifying various extras and special payment for overtime; it also banned apprentices from daily newspaper offices, defined the minimum amount of work to which piece and casual hands were entitled to per night, specified the division of 'fat' matter between workers and employers on the one hand and among groups of workers on the other, and sought to ensure

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[84] Howe and Waite, LSC, pp.53-65, 95-99, 171-82; Howe, London Compositor, chs. 5, 6, and 8. The 1810 Scale is reprinted in ibid., document LIII.

the fair distribution of copy among all the categories of compositors - piece hands, stab hands, and apprentices.[85]

In a sense, therefore, the London Scale of Prices, though in principle the outcome of collective bargaining, actually represented the ne plus ultra of craft regulation: a comprehensive code governing all aspects of the craftsman' position within the enterprise, accepted by the employers, with the resolution of ambiguities in the hands of the common law of trade customs; thus, all future negotiations would refer to the text of the Scale rather than to changing economic realities, except as periodic adjustments of prices became necessary. Consequently, the conventional mode of altering or intensifying regulation was for the LSC to address a memorial to the employers demanding a revision of the scale; conversely, the advent of composing machines would lead the employers to demand the drafting of an entirely new scale.[86]

The TA and the STA, unlike the LSC with its compact metropolitan base, were essentially federations of local typographical societies subject to a broad range of wages, hours, and working conditions, as well as levels of union organisation. Hence rather than engaging in regional or national collective bargaining, the provincial societies relied on unilateral regulation to fix minimum standards within the whole of their jurisdiction, fixing in their rule

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85 The 1868 Scale is reprinted in Howe, London Compositor, document, CXII. 'Fat' matter occurs when a previously charged block of type is reused with minor alterations and charged as if freshly set by compositors. In current practice, where advertisements are set on piece, block advertisements supplied by the advertiser are still charged at the full rate by the compositor, and the proceeds divided among the companionship. Ibid., pp.193, 196.

86 See the memorials of 1866, 1872, and 1890 in ibid., documents LXXIX, LXXXII, and XCIV; for the revised scale of 1891 and the first composing machine scales, ibid., documents XCVII, CXV, CXII, and CXXIV.

books provisions which their branches were obliged to maintain in each area and which each individual member was obliged to respect in his workshop. Thus, for example, the Secretary of the Waterford Typographical Society testified to the continual refusal of the TA to admit his society because of its inability to enforce a limitation on the number of apprentices.[87]

A comparison of the rule books of the three typographical unions supports this distinction to a certain extent. The LSC rules were primarily concerned with its internal government; beyond that they fixed the wages and hours permissible on stab work, prohibited casual engagements of longer than 2 weeks, required 2 weeks notice of transfer from stab to piece work or vice versa, and prohibited its members from 'smooting' (holding more than one job at the same time) or sub-contracting. The TA added a fixed ratio of apprentices to journeymer and from 1891 sought also to enforce minimum standards of remuneration for piece hands; the STA likewise fixed an apprentice ratio and an overtime rate in its rule book.[88]

An example of the different balances between collective bargaining and unilateral regulation in practice can be seen in the respective responses of the LSC and the TA to the deteriorating position of the piece hand during the second half of the 19th century. The LSC convened a conference with the employers in 1889 to discuss payment for 'slating' (time spent idle waiting for copy), while the TA Delegate Meeting enacted in 1891 a set of rules governing

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87 RC on Labour, Group C, P.P. 1893-4, XXXIV, qs. 27, 405-50.

88 LSC Rules 1886, 1890, 1893; TA Rules 1889, 1892, 1893, 1894; STA Rules, 1889, 1899.

piece work which included payment for slating, leaving its enforcement to the branches.[89] Similarly, even after the emergence of national collective bargaining in the 1890s the 1908 TA Delegate Meeting passed a series of new restrictive regulations which would generate serious acrimony among employers; the STA followed suit some 4 years later.[90]

But as we argued earlier, these distinctions between collective bargaining and unilateral regulation should not be overstated. Many of the provincial typographical societies maintained scales of prices - generally modelled on the London Scale - and most addressed memorials to local employers to demand changes in wages and hours.[91] Conversely, much of the collective bargaining aspect of the London Scale was purely notional: the Master Printers' Association disappeared completely between 1866 and 1890, so that the LSC was left to impose compliance through its own efforts. In the absence of an organised partner for collective bargaining, the LSC sought to maintain the lawlike and impersonal character of the London Scale by convening an official committee of the Society to adjudicate disputes over the interpretation of particular clauses; masters and chapel representatives were regularly called before this committee, whose efforts at impartiality were acknowledged even by the employers.[92] The LSC's strategy, in this context was always to maintain its scale in its 'fair' houses while seeking to spread it to the 'unfair' ones. As we have noted, moreover, the union always held that issues not covered explicitly by the scale were

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90 Report of TA DM 1908; Child, Industrial Relations, pp.207-8.

91 For examples of early provincial scales, see Howe, London Compositor, ch.9; for quotations from memorials in Edinburgh, see Gray, Labour Aristocracy, p.58.

92 LSC AR 1884, p.18; Vane Stow to SC on Stationery Contracts, qs.1830-33.

governed by 'the custom of the trade', in practice a form of unilateral regulation.

As a result, the methods of the LSC in enforcing its scale, ostensibly the product of collective bargaining, did not differ markedly in practice from those of the provincial societies in imposing the provision of their rule books. Throughout the 19th century multi-employer strikes remained the exception; the main weapon of printing trade unionism in London and the provinces alike was the celebrated 'strike-in-detail' which the Webbs identified as the hallmark of the Method of Mutual Insurance. Non-complying houses were closed to society members, a procedure often accompanied by boycotts and picketting, as well as, from the 1880s forward, the exertion of political pressure on their customers, especially government bodies.[93]

Obviously, to decree a rule or to call attention to a provision of a scale was by no means successfully to enforce it, and employers often viewed even the London Scale as a form of dictation placing arbitrary restraints on their freedom of action. Edward Unwin of the well-known book form doubtless expressed the views of many union as well as non-union employers when he tried to dissuade the Fair Wages Committee in 1908 from forcing government contractors to adhere to 'conditions agreed with the trade unions', as this would involve the introduction of the London Scale.[94]

> We have in the composing room what is called the London Scale; it is full of intricacies, many of which are antiquated and obsolete, coming between you and your customer at every turn. Ours happened to be a very miscellaneous business when we broke from it in 1872; but up to that time we were putting money into the men's pockets. For instance, the head of the compositors would come to you when you were quietly

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93 Child, Industrial Relations, pp.146-52; Webbs, Industrial Democracy, pp.80, 169-70.

94 Fair Wages Committee, q. 4463.

> doing your work, perhaps, and say; 'You must not do that in that way!' 'What is the matter?' 'This must be done so-and-so.' That is the thing. While technically he may be right according to the London Scale, yet this is so upsetting, that the London Printers in society offices today who have to bear with it, say to me that I ought to be very thankful that I am non-society.

Indeed, a society house printer testifying with Unwin concurred that "... these conditions are extremely unfair and vexatious".[95]

As a national union with branches all over the country and in a variety of sectors within engineering, the ASE resembled more closely the provincial typographical societies in its mode of regulation that the LSC. Its peculiarities stemmed in part from the aftermath of its defeat in the 1852 lockout. At that point it struck the main components of craft regulation from its rules - restriction of the number of apprentices, opposition to piecework, to systematic overtime, and to 'illegal men' working at the trade - and entrusted their enforcement in the guise of trade customs to the branches, not without success, as an 1861 survey domonstrates.[96] In 1874 the ASE Delegate Meeting enacted as a rule prohibiting the extension of piece work to shops where it was not already being worked; here as well, however, the major source of initiative lay with the districts.[97] The main achievement of the ASE as a national organisation during the 1870s, the conquest of the nine hour day, had its origins in a movement of shop committees, which was taken up by the District Committees and prosecuted without much support from the Executive.[98] In the absence of national

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95 J. Straker to ibid, q. 4467.

96 Jefferys, Engineers, p.42; Burgess, Industrial Relations, pp.36-37; for the survey, see Jefferys, 'Skilled Engineer'.

97 Jefferys, Engineers, p.100.

98 Burnett, Nine Hours Movement; E. Allen, J.F. Clarke, N. McCord, D.J. Rowe, The North-East Engineers' Strikes of 1871 (Newcastle, 1971); Burgess, Industrial Relations, pp.41-43.

collective bargaining prior to 1898, the districts were also the seat of such negotiation with employers as occurred. As we have noted, certain District Committees, especially on the Northeast Coast, were able in the 1880s and early 90s, to embody their work rules in agreements with association of employers; wage rates, hours of work, hours and rates of overtime, local holidays, and in some cases apprenticeship ratios formed the substance of such agreements; though where piece work was extensively worked DCs tried to bring it within the ambit of collective bargaining.[99]

Another source of the continuing importance of local autonomy in craft regulation within the ASE lay in the contradictions of its constitutional structure. In principle, the ASE Executive Council, elected prior to 1892 by the London branches alone, was merely an administrator of the society's finances rather than an independent source of policy formulation. The policy of the society was embodied in its rule book, and in the initiatives taken by its District Committees; only the Delegate Meeting had the power to amend the rules, and to prevent the growth of Executive autocracy, a Final Appeals Court possessed the definitive authority to interpret the rules.[100] Moreover, while only the EC could grant strike pay of 5s per week, the District Committees were permitted to grant 10s out-of-work benefit, and therefore could easily undertake a strike without the authority of the Executive. This apparent anomaly of centralised finance without a centralised trade policy earned the ASE the disapproval of

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99 Burgess, Industrial Relations, pp.45-48.

100 Weekes, ASE, ch.1; Jefferys, Engineers, pp.108-110; Burgess, Industrial Relations, pp.35-38.

contemporary observers, who compared them unfavourably to Robert Knight's Boilermakers, among them employers such as John Price of Palmer's shipyards, Jarrow, as well as students of trade unionism such as the Webbs and Paul de Rousiers.[101] The Delegate Meeting of 1892 strengthened centralised administration to some extent by providing for an elected Executive and for the appointment of paid organisers; the former, however, possessed no more real power than had their non-elected predecessors, while the latter, in principle agents of the EC quickly became allies of the DCs by virtue of their involvement in day to day local negotiations.[102]

A constitutional structure of this kind does not persist over a long period of time purely out of inertia, and the "fanatical attachment of the Engineers to an extreme local autonomy"[103] was due to the deeply felt belief of engineering craftsmen that they were as competent to manage their own affairs as they were to regulate their trade. An equally important factor in the persistence of local autonomy within the ASE was the heterogeneous and geographically dispersed character of the jobs performed by its members, in contrast to the relatively localised and homogeneous structure of the shipbuilding industry which provided the basis for the centralised organisation of the rival Boilermakers. Not only were ASE members scattered among the disparate branches of the industry, from the textile machinery shops of Lancashire and the shipyards of the marine centres to the railway works at Swindon and Crewe and the giant arms factories at Elswick and the Royal Arsenal, but significant numbers of engineers were employed outside the industry itself, as mechanics, anciliary workers, and repair

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101 Price to RC on Labour, Group A, q. 26,332; Webbs, Industrial Democracy, pp.94-97; de Rousiers, Trade-unionisme, p.269.

102 Weekes, ASE, pp.7-8.

103 Webbs, Industrial Democracy, p.97.

men in enterprises ranging from iron and steel firms, to local authorities, mines, ships, and even printing factories.[104] ASE members were therefore naturally more reluctant to entrust the formation of union policy and the conduct of collective bargaining for their diverse trades to a metropolitan Executive and full-time officials than were their Boilermaker counterparts in the shipyards, where conditions varied relatively little from one regional centre to the next.[105]

In this context, the ambiguous distribution of authority within the union naturally resulted in conflicts between the districts and the Executive, particularly once inter-regional employers' organisation began to pose a threat to the union's finances on a wider basis. In 1886, for example, the Glasgow DC overruled one of its constituent branches which had given one of its members permission to work two machines. The Executive Council supported the branch and a drawn-out conflict ensued, involving efforts to deny DC members payment of their expenses and culminating in the election of a new DC.[106] In more important cases, however, the outcome was less favourable to the Executive's authority. In 1895 ASE men in Belfast struck to obtain wage advances, and the Clyde employers acting in concert with those in Belfast, locked out their ASE workmen in sympathy. The ASE EC, by this time elected on a national basis, arranged a compromise which the Belfast men found unacceptable, and suspended the men's strike pay in an effort to force them back to work. The 1896 DM,

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104 For the proportions of engineers in other industries see the 'Census of Mechanics' cited in Hinton, Shop Stewards, p.24.

105 See the comments cited in note 101 above, and Reid, Shipbuilding, pp.159-63, 168-70, 388.

106 Burgess, Industrial Relations, pp.46-47.

however, reaffirmed the society's commitment to local autonomy by enacting a rule prohibiting either the EC or any DC from ending a dispute without the consent of two-thirds of the local members.[107] This conflict, together with its outcome, presaged these which ensued once the ASE found itself locked into a national collective bargaining procedure after its defeat in 1898. The major confrontations between the Executive and the Districts arose over the latters' resistance to wage cuts during recessions. District Committees struck without Executive approval on Clydeside in 1903 and on Tyneside in 1908; in each case the Final Appeals Court ruled that the EC could not suspend strike pay, resulting in the demise of the Executive's conciliatory strategy and the resignation of its architect, General Secretary George Barnes.[108]

As our analysis of the ASE suggests, the framework of craft regulation was intimately bound up with the institutional arrangements governing the distribution of power and authority between different levels of union organisation, and nothing was so productive of internal conflict as an external challenge to the existing methods of regulation. Each of the typographical unions, the LSC, the TA, and the STA, represents a different approach to the clash between executive authority and local autonomy that so marked the internal policy of the ASE. In a sense, the LSC and the TA in particular represent opposite policies:the former, with its compact geographical base, its frequent meetings, and its well organised constituent sections, was a bastion of participatory democracy; the latter, with its scattered branches, rare delegate meetings, and apathetic membership, was

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107 Ibid., pp.56-57; Jefferys, Engineers, p.141.

108 See below, pp.400-6.

rather more of a "plebiscitarian dictatorship", in Musson's words.[109]

Confined to the metropolis, the LSC was preeminently an activist, democratic organisation. Its Quarterly Delegate Meetings were well-attended and decisions about major strikes were reached in general meetings open to all members, while rule changes, extensions of benefits, and strike levies were in the hands of ballots which not infrequently overturned executive recommendations. The News Department, independent of the rest of the society until 1854, began to hold its own Delegate Meetings in the 1880s; the unemployed formed a separate chapel, which unsurprisingly was a major force advocating more militant measures to combat unemployment in the 90s; jobbing hands and later linotype operators would likewise form internal groupings toward the turn of the century.[110] The LSC's executive itself, known as the 'Trade Committee', was until the late 1880s composed of twelve members elected three at a time by the Delegate Meetings and serving for one year; after two years' service committee members were forbidden to stand again for an additional two years. In 1888 a coalition of the existing leadership with reformers stirred by the growing ideological ferment in the labour movement combined to strengthen the Trade Committee's authority by converting to election by a ballot of the entire membership and by dropping the rule against terms of longer than two years; the News Department was at the same time granted two representatives on the executive.[111]

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109 Musson, TA, p.107.

110 LSC Trade Reports, 1885-1914, passim; Printers' Register Oct. 1890, p.4.

111 LSC, 'Election of Committee', 9.1.1889, LSC Trade Reports 1889, LSC Rules 1886, 1890; 'Our Trade Committee: Is a Reconstruction Necessary?', Vigilance Gazette, July-Aug. 1888; 'Our Trade Committee of the Future', ibid., Nov. 1888.

The establishment of a more permanent executive by no means checked the tendencies for internal debate and opposition to flourish within the LSC. In the late 1880s, the dissatisfaction of rank and file compositors with aspects of executive policy gave rise to an organised opposition movement, the Vigilance Association. This movement, which emerged in the wake of a successful campaign to abolish half-pay benefit for the unemployed in 1888, quickly became a focus for opposition to the 'old unionist' policies and style of the executive. Its monthly journal, the Vigilance Gazette, which ran from 1888 to 1889, announced its intentions "To remedy...defects in the administration of the LSC...and to ventilate grievances that may be brought to their notice".[112] Associating itself with demands for the eight hour day and a more militant trade policy, by June 1888 the Vigilance Association claimed a membership of several hundred. Though the VA seems to have faded out along with its Gazette sometime the following year, other more overtly political opposition movements replaced it: in 1890, 'The Progressive Association of the LSC',[113] and in 1891 the 'LSC Reform League'. The latter group announced its intention "to promote honest and legitimate opposition to the existing leadership","to fight the bastard trade unionism" of Drummond (the LSC General Secretary, an old unionist with Conservative political affiliations), and to break up the 'gifts'.[114]

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112 Vigilance Gazette, May 1888, and A.W.J. Hands, 'The Trade Committee: What It Is and What It Should Be', ibid., June 1888. The LSC, unlike the TA, possessed no official organ until 1906; a quarterly journal sympathetic to the Executive, The Printer, begun in 1883, folded in 1888. See the attack on the Vigilance Association in ibid., Aug. 1888.

113 LSC Trade Reports 1890; Printers' Register, Oct. 1894, p.4.

114 Workman's Times 12.3.1892 and 20.8.1892, cited in Clegg, Fox and Thompson, Trade Unions, p.144. The gifts were mutual assistance societies within the LSC to which several Trade Committee members belonged; they maintained employment seeking facilities for their members and were widely accused of monopolising the best jobs in the metropolis. Examples of their rules survive in the Webb Collection.

Opposition figures likewise sharply criticesed the Trade Committee's conduct of the negotiations over the revision of the London Scale in 1890-91.[115]

In 1891 three members of the Reform League were elected to the LSC executive (or Trade Committee as it was known), precipitating Drummond's resignation.[116] His replacement was the Secretary of the News Department, C.W. Bowerman, who, though no new unionist, seems to have found cooperation with the left much easier. The opposition followed up this success with a full-scale campaign against the gifts, obtaining several majorities for their abolition in membership ballots; while as a result of an executive-arranged compromise the gifts were not actually dissolved, they were forced to open their ranks to all LSC members and to abjure their employment-providing activities, so that they seem to have played no further role in the politics of the union.[117]

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115 See P.H.S., 'Advance of Wages Movement: The Executive Exposed' in LSC Trade Reports 1891.

116 Drummond's letter of resignation appears in LSC, AR 1891; see also the interview with him in Press News, Mar. 1892, p.36, and Clegg, Fox and Thompson, Trade Unions, p.144; Drummond went on to a post with the Board of Trade Labour Department.

117 'Reports to LSC QDMs', 2.11.1892, 1.2.1893, including the report of a subcommittee on gifts and several ballots, in LSC Trade Reports 1892-3; see also Printing News, Nov.-Dec. 1892 and Feb.-Mar. 1893. The Reform League itself was disbanded in 1892 to set an example to the gifts, Clegg, Fox, and Thompson, Trade Unions, p.144. The opposition within the LSC seems initially to have been inspired more by party political allegiances than by grievances about union government, though obviously it was the existence of such grievances among the members which allowed the opposition to gain a sympathetic hearing. I have not myself attempted to trace the political affiliations of the oppositionists nor the evolution of political debate as such within the LSC; hence I am relying in large measure on conversations with Robert Baldwin of Manchester University, who is preparing a thesis on socialists and trade unions in London, 1880-95. He suggests that dissidents close to the Social Democratic Federation were more willing to work within the official structure and to seek election to union offices than were those associated with the Labour Elector, so that the latter were displaced in influence by the former during the early 90s. The best known SDFer in the LSC, Harry Hobart, who had played an important role in the organisation of the Warehousemen and Cutters' Union, was elected to the Trade Committee in 1891, where he remained for the next 20 years, emerging in 1911 as the editor of the strike paper The Daily Herald.

There were, of course, definite limits to the degree of internal democracy in the LSC. Thus one socialist critic of the Trade Committee complained to the Webbs in the early 90s that the "one great anomaly" in the LSC,

> ...is the fact that although the Committee's proposals are invariably rejected by the delegates, they are nearly always very successful in cases of ballot. As perhaps not more than 2-3,000 members of the 10,000 in the Society will attend any of the meetings during a period of some years, even a cursory reflection would result in a suspicion that the Committee's election and power of administration are due entirely to their exploitation of apathy.[118]

Such apathy is of course a dilemma of all democratic organisations, and in this case testifies more to the reformers' inability to define a clear alternative programme which would mobilise widespread support among the members rather than to any institutional obstacles to the articulation of opposition within the union. And while the reform movements within the LSC achieved no sweeping changes in the society's structure (apart paradoxically from the strengthening of the Trade Committee), their conflicts with the executive in themselves strongly reinforced the union's democratic character, and ensured that the grievances of the members could at critical moments exert a major influence on union policies. Thus in 1896 rank and file rejection forced a renegotiation of the linotype scale, at the risk of a major collision with the newspaper publishers, while the discontent of the unemployed made itself felt in the union's increasing commitment to the eight hour day during the following decade, resulting ultimately in a general strike of book and jobbing printers in 1911.

In the TA, on the other hand, composed of scattered local typographical societies and run by officials elected by the Manchester branch alone, the

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[118] W.H. Boswell to Webbs, n.d., Webb Coll. EA XXI, p.326

Executive enjoyed far greater control over union affairs. Even in large centres such as Manchester, participation in branch activities was low, and between 1860 and 1890 the Executive exploited the apathy of the membership and the ambiguities of the union's constitutional structure to fend off any outside influence in the formulation of union policy. Using its control over the Typographical Circular and over the wording of voting papers, the Executive avoided convening a Delegate Meeting for 14 years after 1877. Naturally, criticism from the branches of the Executive's undemocratic practices and dominance by the Manchester branch escalated through the 1880s. Only the threat posed by the advent of composing machines and the attendant need to mobilise the rank and file behind a unified policy was sufficient, however, to force the Executive to convene a Delegate Meeting in 1891; among the delegates' first acts was to enact a rule that future DMs must be held every five years. The deepening crisis caused by the rapid spread of the linotype, together with mounting pressure from below, led to another DM in December 1893; there the upsurge of democratic feeling expressed itself in a widespread demand for a representative Executive elected by the membership on a regional basis rather than by the Manchester branch alone. In the event, however, a new intermediary institution was created, an annual Representative Council, elected directly by the branches and functioning as an electoral college while at the same time being responsible for reviewing reports and balance sheets.

The role of this new institution in the government of the TA was from the start ambiguous and its functions quickly became the subject of fierce internal conflict: designed as a reviewing body, the RC quickly assumed legislative functions as well, with branches submitting resolutions to it as they would to

a full-scale DM. Ultimately, the tension between the RC and the Executive came to a head over the signing of the first linotype agreement in 1898, which the RC rejected as insufficiently protective of the hand compositors' interests; The Executive, skilled by long practice at the manipulation of opinion within the society, successfully appealed over its head to the membership by referendum. As a result of this clash the 1903 Delegate Meeting dissolved the RC, though the EC itself was transformed into a representative body elected on a regional basis.[119] The TA Executive's victory left it in effective control of the union, though rank and file revolts would occasionally challenge its hegemony, as at the 1908 and 1913 Delegate Meetings; accordingly, pressures for militant action to secure the shorter working week during the 1900s were less influential and the TA would be able to arrange a compromise peace with employers in 1911 while the LSC would commit itself to an all-out strike.

In its own way, the STA represented yet a third mode of resolving the tensic between local autonomy and executive authority within a framework of craft regulation: nearly all power rested with the branches, while the Executive played a minimal role. With a membership in 1890 of only 3,000, the STA, even more than the TA, remained a federation of quasi-independent branches, dominated by its most important constituents, Glasgow and Edinburgh. The Executive Council, located in Edinburgh and composed of representatives from the major branches, did not generate major initiatives in policy during the 19th century, though it might, for example, encourage the tightening up of apprenticeship rules. In general, conflicts between the branches, (especially between Glasgow where the

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119 Reports of TA DMs 1891, 1893, 1898, 1903; Reports of RC 1893-98 in TC; separate RC Reports 1899-1902; Musson, TA, pp.125-48.

union was strong and Edinburgh where it was weaker after an unsuccessful strike in 1871-2) paralysed such initiatives for concerted action as emerged from the branches at Delegate Meetings: the most notable case in point was the efforts by the Edinburgh and Aberdeen branches to develop some strategy to deal with the prevalence of female labour that was the underlying source of their weakness; the Glasgow branch blocked all proposals to liberalise society rules as conducive to weakening their own position.[120] It was only in the face of a threatened national lockout over rules changes enacted at the 1912 DM that the STA Executive allowed itself to be drawn into regional collective bargaining to any significant extent; even then the next year's delegates enacted a new rule forbidding it to sign any agreements without first submitting them to a membership vote.[121] Thus the STA remained a bastion of unrestricted local autonomy right up until the First World War.

Craft regulation, the expression of skilled workers' aspirations to control the conditions under which they worked on the basis of their conceptions of themselves as craftsmen, was thus compatible with a wide range of bargaining arrangements with employers; similarly, the tensions between their desires for direct control of their own affairs and the requirements of wider organisation were productive of strikingly different internal political arrangements. Contrary to the Whig assumptions of proceduralist theorists of industrial relations, there was neither a sharp break between unilateral regulation and collective bargaining, nor an ineluctable tendency for central authority to

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120 Gillespie, STA, pp.52-59, 101-8, 203-5.

121 STJ, 1912-13; Child, Industrial Relations, pp.207-8.

expand at the expense of local autonomy.

Nor was one form of organisation in itself more effective in securing the aims of craft regulation. The outright suppression of dissent and the persistence of uncontrollable internal strife both carried with them dangers for trade union organisation. The "centralised absolutism"[122] practiced by the TA Executive left it reluctant to trust the independent initiatives of its members, and therefore led it to exacerbate the weakness of the union's bargaining position by repeatedly caving in to employers' demands rather than risk a confrontation. The LSC leadership, by contrast, confident of its members' willingness to support militant action and conscious of the need to win their active support for union policies, could adopt a much tougher negotiating stance, and frequently achieved its aims by threatening, and on occasion taking, strike action. Conversely, however, the endemic conflicts between the ASE Executive, local officials, and the rank and file meant that union policy oscillated between autocratic attempts to impose a centralised direction on collective bargaining and its disintegration in the face of revived local opposition, a dialectic which did much to undermine the effectiveness of craft regulation and to prepare the way for the debacles of 1897-8 and 1922.

Just as the internal political styles of these various unions affected their respective abilities to mobilise their members for major confrontations with the employers, so too did they influence their capacities to form durable alliances with other unions. Thus, as we shall see, the cohesive and participatory LSC found it relatively easy to collaborate with the other London printing

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[122] Musson, TA, p.133.

unions for common aims within the context of the Printing and Kindred Trades Federation (PKTF), while the TA's cautious and autocratic style led it repeatedly to withdraw from Federated movements to strike a separate (and often less advantageous) deal with the employers. Similarly, the volatile and fissiparous ASE was not seen as a reliable ally by the other engineering and shipbuilding unions, who were persistently alienated both by its imperialistic attitudes towards other organisations and by its leaders' inability to maintain a consistent policy. As we shall see in subsequent chapters, these pronounced contrasts in the political styles of the typographical unions and the ASE, related but by no means reducible to regional and industrial variations in market structure and the division of labour, would have a significant impact both on the effectiveness of each union's framework of craft regulation and on the outcome of conflicts over technical change.

# Chapter III

## Arenas of Conflict, 1850-1890

> ...With the steady increase in the price of labour, there is a constant conflict going on, a perfectly peaceful one, between employers and skilled labour; and it is shown in endeavours to substitute skilled labour by machinery. (J. Price, General Manager, Palmer's Shipbuilding and Engineering Co., Jarrow, to R.C. Depression, Third Report, q. 10,963.)

In a well-known section of the Prison Notebooks, Antonio Gramsci drew what has become a celebrated distinction between "war of manoeuvre" and "war of position" in relation to the social and political constraints on socialist strategy. Gramsci argued that only a peculiar set of circumstances, such as the crises of the state and the weakness of civil society in Russia in 1917, made a rapid and radical contestation of the entire structure of society possible - in his terms a "war of manoeuvre". In the more stable liberal democracies of Western Europe, on the other hand, where the density of civil society gave the established regimes greater security and popular legitimacy, a more gradual strategy of socialist transformation - a "war of position" - had become necessary.

Whatever the defects of Gramsci's argument as a normative framework for socialist strategy, this distinction has considerable heuristic value for the analysis of industrial conflict.[2] In 'normal' times, when the structure of the

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[1] 'State and Civil Society', in A. Gramsci, Selections from the Prison Notebooks (ed. and trans. Q. Hoare and G. Nowell-Smith, 1971), pp.206-76.

[2] Some of the difficulties in Gramsci's political thought are cogently set out in P. Anderson, 'The Antinomies of Antonio Gramsci', New Left Review, 100 (1977)

division of labour remains stable, it is generally treated as given by both sides and together with the legal and political rules governing the relations between labour, capital, and the state - creates the framework for both conflict and compromise between workers and employers. In such periods, the conflicts arising from workers' and employers' divergent definitions of their respective interests are likewise regarded as normal - in Price's words as "perfectly peaceful" though they may involve strikes and other sanctions, and do not in principle require major shifts in strategy on either side. At moments of crisis, when external pressures and internal developments undermine the continued viability of the structure of the division of labour these same normal conflicts may suddenly assume a new significance, as the tacit rules regulating relations between workers and employers in the industry are called into question, and both sides may therefore have to reconsider their strategies or even their conception of themselves in the light of the dangers and opportunities raised by the new situation.[3]

For our purposes, once this distinction between conflicts within a particular division of labour - normal conflicts or war of position - and conflicts about the structure of the division of labour itself - crises or war of manoeuvre - has been established, the crucial question concerns the relationship between the two phases of industrial conflict. This relationship contains two essential aspects. First, the outcomes of normal conflicts are not without significance for the structure of the division of labour. The multiplication and intensification of normal conflicts can itself point the way towards a crisis through the

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[3] For the concept of normal conflict in this sense, see Sabel, Industrial Conflict especially chs. 1 and 4; for an alternative approach to the same issues, see the discussion of the 'terrain of compromise' in Lazonick, Wilkinson, and Zeitlin, 'Labour Process'.

gradual erosion of one party's position, as for example the progressive extension of piecework may subvert the standard rate or the rising price and autonomy of skilled labour may threaten a firm's profitability. Second, and equally importantly, if following the military adage, generals always prepare to fight again the last war, so too, workers' and employers' perceptions as a war of position gives way to a war of manoeuvre tend to be dominated by memories of the previous major confrontation over the structure of the division of labour (which may have occurred a generation or more earlier), and more forcefully by their own experiences of the innumerable skirmishes along the frontier of control which followed. Thus as a new wave of technical and organisational change begins both sides will take as their first concern the prevention of any incursion by the other into already contested terrain, while seeking to exploit whatever opportunities arise to outflank the enemy and thereby to establish their claims on a more secure footing within the new phase of the division of labour. This latter pattern can be said to shape the entire history of conflicts between skilled workers and their employers over mechanisation, as the former seek to extend and strengthen their framework of craft regulation, while the latter manoeuvre to free themselves from such encumbrances once and for all.

The years between 1850 and 1890 saw a progressive intensification of normal conflict in both engineering and printing, a development which despite its different sources in the two industries would precipitate major crises of craft regulation in both cases during the 1890s. In engineering, the existing structure of the division of labour and the tacit settlement between skilled workers and employers which had emerged in the wake of the 1852 lockout were reaching their internal limits as the returns from a pattern of extensive growth diminished, a

problem exacerbated by the rising cost of skilled labour. At the same time, British manufacturers were beginning to face increasing competition from American and German producers operating on the basis of a more advanced division of labour. In printing the crucial problem was the inability of hand composition to keep pace with the rapid expansion of demand for printed matter and the technical development of the printing press - especially important on daily newspapers - and the intensifying competition among domestic book and commercial printing firms, which depressed profit rates. Each of these developments put growing pressure on the employers to cheapen and intensify the hand compositor's labour, while ultimately seeking to mechanise it entirely.

In both industries these pressures placed the existing frameworks of craft regulation under increasing strain and brought certain long-standing areas of conflict between skilled workers and employers to the fore. It was the attitudes and strategies formed by craftsmen and employers in relation to these conflicts which would structure their initial response to the onset of technical change in the 90s, and a close analysis of the arenas of conflict in the period preceding mechanisation is therefore essential for an understanding of the subsequent crises of craft regulation.

In many respects, the pattern of normal conflict between skilled workers and their employers during this period was similar in engineering and in printing, largely because of the similar objects of craft regulation in each case. In both industries, craftsmen found themselves in recurrent conflict with their employers as a result of their efforts to control entry to the trade, to maintain their lines of demarcation, to defend the standard rate and their control over the pace of work in the face of new forms of payment and supervision, and to regulate

the labour market as a whole. But while the underlying sources of conflict were similar in the two industries, the pattern of conflict itself and the salience of particular issues diverged substantially as a result of variations in market structure, in the development of the division of labour, and especially in the prior history of industrial conflict. In particular, the experience in engineering of a previous wave of technical change and a major confrontation between skilled workers and their employers in the late 1840s and 50s set it off from printing with its relatively static technology (at least in the composing room) and its more continuous history of industrial relations. As a result, lines of demarcation were intrinsically more ambiguous and difficult to defend in engineering and the threat of further mechanisation loomed larger than in printing, where conflicts between craftsmen and employers focused more sharply on issues of unemployment and underemployment. In the balance of this chapter we will analyse the development of normal conflicts in each industry separately before returning to a comparative assessment of the effectiveness of craft regulation and the position of skilled workers on the eve of a major wave of technical and organisational change in the 1890s.

## Engineering

### The Emergence of a New Pattern of Industrial Relations: 1850s and 60s

As we have observed, the division of labour which prevailed in engineering through most of the second half of the 19th century was itself the product of a prior wave of technical change and industrial conflict during the 1840s and 50s. As a result of their victory in the 1852 lockout, engineering employers formally obtained the right to place labourers on machines, to employ non-union labour, to introduce piecework, and to impose systematic overtime; in many cases they also forced their employees to sign 'the document' renouncing trade union membership as a condition of reemployment. The source of the exceptional bitterness of this confrontation between employers and skilled workers lay in their shared belief, itself shaped by the preceding period of rapid technical and economic change in the industry, that the course of transformation of the division of labour might result in the eventual elimination of skilled craftsmen as a significant component of the engineering labour force.

In the event, however, neither the hopes of the employers nor the fears of skilled workers proved correct, for a combination of technical and economic reasons. The machines which were involved in the first wave of mechanisation in engineering - the slide-rest lathe, the planer, the slotter, the shaper, and the driller - only routinised a part of the engineering craftsmen's skills, while the light special-purpose machine tools which would make it possible to routinise large parts of fitters' and turners' skills were only developed in America after 1840 on the basis of a market for standardised mass produced goods which did not exist in Britain during the same period.[4] At the same time, the composition and

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[4] Saul, 'Mechanical Engineering' and 'Machine-Tool Industry'; N. Rosenberg, Technological Convergence in the American Machine Tool Industry, 1840-1910', Journal of Economic History, 23 (1963).

rate of expansion of demand for British engineering products was changing. The years between 1835 and 1850 represented the most rapid period of expansion for the engineering industry before or since, fuelled by the growth of cotton textiles and the railways, which naturally put the most extreme pressure on the existing division of labour in the industry.[5] After 1850, however, the rate of growth of domestic demand slowed and export markets providing steady but less spectacular growth became progressively more important to the industry as a whole. As Burgess has shown, the period from the 1850s to the 1880s was marked by a pattern of extensive labour-using growth, in which investment broadly preserved the same ratios of capital to labour, so that the expansion of the industry brought in its train a considerable expansion of the skilled labour force: membership of the ASE, for example, grew from 9,737 in 1852 to 72,221 in 1891.[6] The turn towards overseas markets and the development of new products seem broadly to have encouraged increasing reliance on skilled workers by the less standardised character of the demand, though this must be set against the trend toward specialisation noted by many contemporaries, the result of the development of the division of labour, however extensive.[7]

The changed economic context facilitated the emergence of a new pattern of relations between skilled workers and their employers, as a war of position replaced a war of manoeuvre. Skilled workers could accept the presence of labourers on certain types of simple machines without immediate fear for the

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[5] See especially Burgess, 'Technological Change', p.229.

[6] Jefferys, Engineers, p.291.

[7] Burgess, Industrial Relations, ch.1, especially pp.25-28; on specialisation, see pp.48-50.

disappearance of their craft, while employers, secure in the knowledge that the new division of labour was an accomplished fact, could accept collective bargaining and even concede many of craftsmen's specific demands on the organisation of work, as well as on wages. Thus many of the issues that had sparked the 1852 lockout became much less salient during the 1850s and 60s. The ASE struck from its rules after the lockout its provisions against piecework, overtime, and 'illegal men', together with its call for a 1:4 ratio of journeymen to apprentices, leaving their enforcement to the discretion of the districts and the branches. As the new pattern of industrial relations crystallised, employers became more prepared to compromise on several of these issues. The problem of systematic overtime, for example, was closely associated with the period of rapid and unstable growth before 1850, as employers sought to keep their machinery operating as long as possible to amortise their capital investments during the boom before the onset of the inevitable slump. Accordingly, the need for overtime diminished as the pace of growth levelled off after mid-century, and a survey taken by the ASE in 1861 shows that despite the variation in hours between districts, the principle of a standard working day had become well-established and systematic overtime contained; in most districts a special overtime rate of time and a quarter had been established to discourage the practice.[8]

Similarly, the ASE's opposition to piecework in this period centred on the 'piece-master' system, whereby a gang leader or piece-master sub-contracted to perform a given job at a set price and was in many cases responsible for hiring

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[8] Jefferys, 'Skilled Engineer', pp.34-35; Burgess, Industrial Relations, p.25.

his labour force. The piece-master generally kept a disproportionate share of the gang's earnings for himself, which he often increased by hiring boys and labourers rather than skilled men, and had a built-in incentive to drive the men as hard as possible. This form of 'co-exploitation', particularly resented by the skilled men, also tended to disappear with the stabilisation of the new division of labour and the development of more modern methods of management. By 1861, only 22 of 173 districts in the ASE reported any piece masters, and 75% of these were in Lancashire, the stronghold of piecework in general, though even there individual piecework predominated. Roughly 10.5% of society members were employed on piecework in toto, and as Table 4 shows these were concentrated in the most standardised branches of the industry - the textile engineering districts of Lancashire, the centres of locomotive building scattered around the country, agricultural implement makers in the Southeast, and large arms factories such as the Royal Arsenals at Enfield and Woolwich and Armstrong's on Tyneside - while the vast majority of jobbing, general engineering, and marine engineering shops were almost completely free of its influence. While the evidence is inconclusive, it seems possible that piecework continued to decline into the 1860s; this at any rate was the judgement of William Allan who told the Royal Commission on Trade Unions in 1867 that even in Manchester, the stronghold of piecework, "there was not so much as formerly"; likewise, an ASE conference in Lancashire in the same year reported its abolition in many districts.[9]

Even intrinsically less tractable questions such as that of 'illegal' or non-apprenticed men engaged on skilled men's work became less salient in the 50s and 60s. This was the period when the ASE was able to establish a standard

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[9] Jefferys, 'Skilled Engineer', pp.39-44; Burgess, Industrial Relations, pp.25, 39-40. William Allan in RC on Trade Unions, q. 677.

rate of wages in most districts and the problem of illegal men tended to become subsumed by demands that particular jobs be paid at the district rate, whoever performed them. Conversely, the ASE had amended its rules in 1852 to allow the admission of men who had been working for five years at the trade if they were earning the district rate. In practice, most of those meeting this criterion would have served an apprenticeship, and while there is no hard evidence it seems highly probable that where local conditions permitted, branches and district committees continued to try to reserve particular jobs for ASE members. Given the prosperity of the industry and the generally favourable character of the new pattern of industrial relations, employers were prepared to make certain concessions of these kinds. Similarly, as the division of labour stabilised, the ASE was able to organise many of those who had entered the industry as handymen but who had meanwhile moved into more skilled positions.[10] For example, Armstrong had originally recruited the labour force for his Ordnance Works from outside the ranks of apprenticed workers, and these were for many years excluded from the trade unions; in 1871, however, just before the nine hours strike, these men were admitted under the ASE's five year rule.[11]

Broadly speaking, then, it seems correct to argue as does Burgess, that, "...what the ASE had failed to achieve in a direct confrontation with employers during 1851-2, it realised piecemeal in the succeeding decades".[12] But while the structure of the new division of labour, together with a new pattern of

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[10] Burgess, Industrial Relations, p.40.

[11] Evidence of J. Burnett in Webb Coll. EA XVI, pp.236-37. I am grateful to Keith McClelland for calling this reference to my attention.

[12] Burgess, Industrial Relations, p.30.

industrial relations had become well-established in the two decades after mid-century, it would be a mistake to conclude that this ruled out skirmishes between skilled workers and their employers as to precisely where the 'frontier of control' should be drawn. Despite its publicly expressed aversion to strikes for example, the ASE Executive in 1866 supported workers at a Manchester locomotive firm who struck against the appointment of a foreman whom they held to be 'not qualified'; after two months the firm was forced to dismiss the foreman.[13]

Moreover, not only did local and district collective bargaining over wage rates intensify during upswings as skilled workers' bargaining power increased, but the continuing fluctuations of employment caused by the intensity of the business cycle in engineering as a capital goods industry, together with new concerns among workers for leisure time, gave rise to a broad movement for a shorter working week during the boom of 1871-2. The movement began in the marine centres of the Northeast Coast, where recent industrial development had been most rapid with the emergence of large employers like Armstrong and Palmer, where association with shipbuilding gave added intensity to cyclical fluctuations, and where the unions had hitherto been quite weak. The nine hours movement therefore developed initially in large part outside official union structures, mobilising the skilled and unskilled alike, but after the victory of the strikers on the Wear, Tyne, and Tees, it quickly spread to other districts. The nine hour day was widely obtained, though hedged round with qualifications that would imperil its achievement during the depression that followed. The ultimate result was a great increase in the power of the craft unions, especially on the Northeast

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[13] Ibid., p.41.

Coast which became one of the ASE's most durable strongholds.[14]

## Diminishing Returns and Intensification of Normal Conflict: 1870s and 80s

The boom of the early 1870s proved in many respects the high water mark of the period of extensive growth of the engineering industry based on dominance of export markets and a static division of labour, and with it of the pattern of relations between skilled workers and their employers that had crystallised in the decades after mid-century. The forces subverting the pattern of development of the 50s and 60s - which nonetheless persisted in modified form up until the First World War in some sectors - came both from without and within. While statistics on productivity are notoriously difficult to compile, especially in so heterogenous an industry as engineering, there is some evidence to suggest that the costs of skilled labour had begun to outrun the growth of productivity by the 1870s; the most recent estimates suggest that it was in this period that the rate of productivity growth began to decelerate in British manufacturing industry as a whole, as measured by aggregate statistics of output per man hour.[15] Certainly, such a trend is what one might expect to find as the productivity gains to be drawn from the extension of a given division of labour became exhausted and as the consolidation of craft union organisation subjected employers to greater constraints in the management of their enterprises.

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14 Burnett, Nine Hours Movement; Allen et al. Engineers' Strikes; Burnett in Webb Coll. EA XVI, pp.236-37.

15 Lewis, Growth and Fluctuations, ch.4.

The best direct evidence on this point comes from the testimony of John Price, General Manager of Palmer's Shipbuilding and Engineering Works, to the Royal Commission on the Depression in 1886: while the volume of output, as measured by nominal horsepower, rose by 160% between 1865 and 1882, as compared to an increase in the number of skilled workers of 45%, the cost of labour per unit of nominal horsepower rose from 23% to 30% in the same period, largely because of the rise of skilled man's wages. Those of fitters at Palmer's increased 32½% between 1871 and 1886, patternmakers 39%, boilermakers 33½%, and labourers 26%; official ASE wage rates (not to be confused with earnings which were often lower) rose 30-40% depending on the locality between 1850 and 1890.[16] Price also pointed to the substantial impact of the shorter working week obtained in 1871 in inflating labour costs, an experience employers would emphasise in their resistance to the eight hour day in the 1890s.[17] To be sure, a best-practice machine tool firm which made innovations in product design might still achieve substantial gains in productivity without major changes in the division of labour, though these would also be offset by the rising price of skilled labour. Thus Greenwood and Batley, a leading Leeds toolmaking firm achieved an average increase of output per man of 2.3% per year without any long term shift in the proportions of ASE members, machinists, and boys employed.[18]

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16 RC on the Depression, Second Report, App. IV and Third Report, qs. 10,963-67.

17 Ibid., Third Report, q. 10,599.

18 Floud, Machine Tool Industry, pp.197-202. While indices of productivity are intrinsically problematic in so heterogenous an industry as engineering, Floud's calculations are based on the weight of metal processed, which he found correlated strongly with price, and therefore appears to take adequate account of the changing complexity of the machines as well as of the sheer volume of output. Using a similar measure, Phelps Brown and Browne found that productivity in engineering fluctuated around a rising trend in the 1880s and 90s only to drop sharply after 1900. Century of Pay, pp.177, 180.

Another source of difficulties for engineering employers lay in the depression which afflicted the world economy after 1873; its effects were especially serious for exporters of capital goods, as the falling trend of agricultural prices depressed the purchasing power of their overseas customers. While economic historians have long debated whether the period between 1873 and 1896 can be globally characterised as a depression, as well as whether it formed the downswing of a long cycle in capitalist development, a glance at the output figures for the 70s and 80s for the capital goods industries in Britain, especially iron and steel products and shipbuilding, should be sufficient to highlight the differences in the economic climate between this period and the preceding 20 years.[19] At the trough of the depression in 1879, unemployment of trade unionists in engineering and shipbuilding reached 15%, while throughout the 80s unemployment in the two industries ran 26% above the national average.[20] At the same time as it amplified the effect of cyclical fluctuations, which had been relatively modest in the 50s and 60s, the onset of the depression put added pressure on employers to reduce their costs, especially labour costs, which as we have seen had been steadily rising.

Finally, the beginnings of competition from the developing industries of Germany and America brought additional strain to bear on the existing division of labour in British engineering. While the full force of American competition did not make itself felt until the mid-1890s, and then largely in light machine tools and mass produced consumer durables, competition was nonetheless developing

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19 For a rather tendentious summary of the economic historical debate, see S.B. Saul, The Myth of the Great Depression (1969), which should be read in conjunction with Lewis, Growth and Fluctuations, ch.1-5. Output figures for these industries are in ibid., pp.248-49.

20 Burgess, Industrial Relations, p.26; Jefferys, Engineers, p.55.

in areas such as agricultural machinery from the 1870s. Similarly, not only did European markets begin to close themselves to British goods, but Germany began to make inroads into British dominated markets in the underdeveloped world in sectors such as locomotives and railway rolling stock and even steam engines.[21] Even where foreign competition did not actually make itself felt, as in shipbuilding and marine engineering where British producers remained overwhelmingly dominant right up to the First World War, employers' perceptions of the threat from abroad could lead them to take a sterner line in relations with skilled workers than hitherto, as the testimony of shipbuilders to the Royal Commission on the Depression suggests.[22]

While the depression pressed engineering employers to find new ways of increasing productivity and reducing the cost of skilled labour, it also discouraged the large-scale capital investment that would have been necessary for major changes in the division of labour by reducing demand and squeezing profits. Consequently, in the 70s and 80s employers concentrated their attention on cheapening and intensifying skilled labour within the structure of the existing division of labour, the most important means of which was the extension of piecework. The ASE since its inception had been a bitter opponent of piecework, an opposition the Webbs ascribed to its subversive effect on the standard rate and collective bargaining in general.[23] This aspect of piecework

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21 Saul, 'Engineering'; Floud, 'Engineering Competition'; McLean, 'Engineering Competition'.

22 Pollard and Robertson, Shipbuilding; RC on the Depression, Third Report, passim

23 Industrial Democracy, pp.291-92, 297.

undoubtedly played a large part in skilled engineers' grievances against the system. Foremost among their objections was the arbitrary manner in which piece prices were fixed by the employer, generally without reference to collective bargaining. As William Allan told the Royal Commission on Trade Unions in 1867:[24]

> In many cases (I may say nine out of ten) the workman has no voice in the arrangement of the price. The price is fixed by the employers and if the workman will not take the job at the price he may leave it.

Equally important, however, was the tendency of employers to set an explicit or implicit limit to piecework earnings after which the rates would be cut, so that the increased effort of the men would merely result in the reduction of rates, with all the benefit accruing to the employer; the operation of such systems is clearly set out in the testimony of the managers of various departments of Woolwich Arsenal to the Morley Committee on the Manufacturing Departments of the Army in 1887.[25] This practice might ultimately depress earnings below time wages, particularly if the rates were set with reference to an expert workman:[26]

> ...Employers generally give a piece of new machinery or whatever they want doing into the hands of an expert workman, so that if he gets what may be considered a fair wage, those who are not such good hands come down to almost a starvation price.

At the same time, other objections to piecework by skilled engineers went beyond the principle of collective bargaining as such to focus on the impact of piecework on the constitutive solidarity of the craft community. As the General Executive Council of the ASE put it in 1861, "...it too often sets man against man..."[27] Similarly, the rank and file engineer's belief in the existence of

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[24] RC on Trade Unions, q. 782.

[25] Morley Committee, passim.

[26] William Allan to RC on Trade Unions, q. 673.

[27] Cited in Jefferys, 'Skilled Engineer', p.42.

a 'lump of labour', i.e. a fixed volume of employment at any moment, (a not unfounded view in a slowly growing economy) led him, as David Schloss attested in the 1890s, to oppose the added production involved in piecework as taking work away from other men.[28] Finally, skilled engineers tended to regard the accelerated pace of work involved in piece payment as an affront to their dignity as craftsmen, arguing that the practice led to 'scamping' and reduction of quality. To quote William Allan once again:[29]

> ...We believe...that the work in a great measure suffers, that it is not done in so finished and good a style as if done by day work.

In 1874, presumably flushed with the victories of the nine hours' movement and perhaps also alarmed by employers' encroachments, the ASE Delegate Meeting enacted a new rule prohibiting the introduction of piecework into districts where it was not already in operation. This led to a series of disputes with employers: in 1876, for example, while ASE members were able to prevent the spread of piecework to Nottingham, the introduction of blacklegs led to the union's defeat in a rather more important strike at the Easton and Anderson works in Erith, near London.[30] It is difficult to judge to what extent piecework was being introduced in this period, since the findings of an ASE survey in 1876 and the Wages Census of 1886 contradict one another (see Table 4A), but the evidence of strikes and internal debates within the ASE strongly suggests that after a decline in the 50s and 60s piecework was once again on the rise in the 70s and 80s, despite the union's prohibitions.[31] A more comprehensive

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28 Schloss, Renumeration, pp.43-44.

29 RC on Trade Unions, q. 673.

30 Webb Coll. EA XVI, f. 6, pp. 63-68; Jefferys, Engineers, pp.100-101; Burgess, Industrial Relations, pp.39-40, 45-46.

31 For other disputes over piecework, see ASE MR Apr. 1886, p.36; Oct. 1887, p.37.

survey taken by the ASE in 1891 showed that nearly 17% of its members were paid by the piece. The incidence of piecework was spread very unevenly throughout the country, with the cycle making districts of the West Midlands overtaking Lancashire as the centre of the practice: 44% of ASE members were paid by the piece in 1891, and in Coventry itself 80%; the uneven advance of piecework in the different districts is shown in Table 4B. In areas where piecework had long been established informal bargaining over piece prices had emerged, particularly in the textile engineering districts of Lancashire, and in the face of the union's inability to enforce its prohibition, motions to regulate piecework were submitted to the Executive Council and the Delegate Meeting in 1878, 1885, and 1888. All were defeated, however, and it was only in 1892 that local negotiations of piece prices was authorised by the union.[32] Even then, the Executive Council continued to express the union's traditional hostility to piecework by barring the District Committee from negotiating lists of piece prices and decreeing that "...shop rates of piece prices must be regulated voluntarily by those engaged in the system".[33] While in some districts such as Manchester, the District Committee sought nonetheless to provide guidelines for piecework bargaining, in others local officials continued to forbid members to accept piece payment. Similarly, even where the practice was in force, employers complained consistently of the operation of informal systems of output restrictions.[34]

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[32] Jefferys, Engineers, pp.100-1; Burgess, Industrial Relations, pp.45-46.

[33] ASE QR June 1894; Jefferys, Engineers, p.139.

[34] Jefferys, Engineers, p.139; Clegg, Fox, and Thompson, Trade Unions, p.141; and the series of broadsides 'Examples of ASE Interference and Restriction' issued by the EEF, Nov. 1897, Webb Coll. EB LIX, 10-14.

In some cases, employers who found piecework an inadequate stimulus to improved productivity had replaced it with time work under close supervision. At Armstrong's Elswick works, where arms production had led to one of the most advanced divisions of labour in Britain the management found that the skilled men tended to operate a 'limit system' to prevent rate cutting. As a result, by the late 1880s piecework was eliminated on the bulk of the work, and special foremen who later became known as 'feed and speed' men, had been appointed to ensure that the machines were operated at what the management considered an appropriate speed. As the Managing Director, Captain Noble, told the Morley Commission in 1887:[35]

> ...Except in some specialities, we have very much discontinued piecework, using other means to get a fair amount of work out of the machines or the fitters, as the case may be.... For example, in the case of the big gun, if the foreman does his duty and takes care to see that the machine is going at a proper speed, and is making a suitable cut, you gain nothing by putting on piecework.

As a result, the ratio of foremen to production workers in the various departments ranged from 1:30 to 1:60, with the supervision especially heavy in the large gun shops where the absence of repetition work discouraged piece payment; Noble estimated that Armstrong's expenditure on supervision would be three or four times that of an ordinary engineering concern.[36] Similarly, the Secretary of the ASE's Tyneside District Committee told the Royal Commission on Labour, presumably with Armstrong's uppermost in his mind, that on the Tyne, the foreman was no longer a practical workman but rather a "task master, whose duty it is to flog the men up to the highest pitch", though he went on to add that "...there is no more work turned out, because the workman, as a rule, knows his trade sufficiently well to evade the task master."[37] These 'feed and speed' men would

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[35] Morley Committee, qs. 9012, 8998.

[36] Ibid., qs. 9004-16.

[37] W. Glennie to RC on Labour, Group A, q. 23,157.

become an especially bitter point of contention between craftsmen and employers in the district as the 90s wore on.[38]

Piecework and intensified supervision, however, were by no means the only component of the employers' offensive against craft regulation. Machine manning and the encroachment of labourers and handymen on skilled men's work, Price's "perfectly peaceful conflict", once again became a problem. The value of the handyman to the employer lay not only in his lower wages but also in the greater docility resulting from this weaker market position. When first promoted to machine work a handyman would be conscious that only good fortune had removed him from the ranks of casual labourers; even when he had learned to operate more complex machines, the lack of a wider training might still prevent the recognition of his skills on the wider labour market. The consequent dependence of such workers on the internal labour markets of particular firms naturally made them less likely than apprenticed craftsmen to refuse piecework or overtime or otherwise to challenge managerial authority in the workplace, as did their lack of socialisation into the values of the craft community.[39]

It was not, on the whole, the introduction of new automatic and semi-automatic machine tools such as turret and capstan lathes or milling machines which were at issue: a leading British machine tool firm, Greenwood and Batley, sold only 46 milling machines between 1874 and 1881, while the sales in Britain of the leading producers of light machine tools of this kind, Alfred Herberts of

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38 For later references to feed and speed men on the Tyne, see J. Ratcliffe (ASE ODD, Tyne) to SC on Government Contracts, qs. 2468, 2506, 2536; de Rousiers, Trade-unionisme, p.283; Schloss, Remuneration (1898 ed.), p.15; ASE, Notes on the Engineering Trades Lock-Out, pp.68, 77; B. Taylor, 'Machine Question', Cassier's Magazine, Nov. 1897, and below, pp.365-68.
I am grateful to Keith McClelland for pointing out the passage in Schloss's book which is missing from the 1892 edition.

39 On the narrower horizons of the handyman in relation to the labour market, see pp. 50, 391.

Coventry and the American firm Brown and Sharpe, only took off in the mid-90s under the impetus of the bicycle boom.[40] Rather, employers tended to make more intensive use of the possibilities already available to them within the existing division of labour, occasionally promoting handymen onto lathes from planing machines, as Price of Palmer's noted, but more often multiplying the numbers of planing, slotting, and shaping machines and with them the burgeoning class of machinists, as well as introducing fitters' assistants. Thus in 1882 machinists were 70% as numerous as fitters at Palmers, while in the Engine works of Harland and Wolff in Belfast in 1892 fitters' assistants outnumbered fitters and machinemen and boys outnumbered turners.[41] Another indication of these developments was given in a paper delivered by a managing engineer on the Tyne in the 90s, surveying the evolution of the division of labour in one large firm, who noted that in 1873, the relation of fitters to machinists on simple engines was 1:1; by 1882, despite the introduction of more complex compound engines, the ratio had increased to 1:2.31; similarly, whereas 1,022 men had been required to produce 2,260 nominal horsepower by 1882 1,351 were able to produce 5,868 nominal horsepower.[42] In the large railway works at Crewe and Derby in the early 90s, Frank Galton found not only the widespread use of fitters' assistants, but also the prevalence of the 'team system' under which a leading hand paced a gang made up of several skilled men and a large number of boys, often on piecework; analogous working methods were reported by ASE District Delegates in the

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[40] Saul, 'Engineering', p.28, and his 'Mechanical Engineering' and 'Machine-Tool Industry'; Floud, 'Engineering Competition'.

[41] Price to RC on the Depression, Third Report, qs. 10,971, and Second Report, Table 1; Harland to Webbs, Webb Coll. EA XVI, f. 1.

[42] Cited in report of ASE ODD 3 (Tyne), ASE MJ & R May 1897.

new centres of the cycle industry in the West Midlands, especially Coventry, Nottingham, and Birmingham.[43]

This portrait of change should not, of course, be overdrawn. In the vast majority of smaller, less specialised workshops which dominated general engineering, craftsman still held sway and innovations such as machinists and fitters' assistants were little known: in the early 1890s, for example, Galton found the skilled men largely free from challenges from below in districts like the Potteries, the ports of South Wales and the Bristol Channel, and even in the railway shops in North Staffordshire.[44]

Where the newer machine tools came into operation, however, the ASE found itself especially vulnerable. The Maxim-Nordenfeldt works at Erith and Crawford near London was a large arms firm which had been established in the 80s, specialising in the production of gatling guns and shells, both involving a great deal of repetition work; the division of labour was accordingly particularly advanced and the firm boasted of its "nearly automatic" machines. In 1889, ASE members sought to take advantage of the upturn in the labour market to resist rate cutting, the introduction of piecework into new shops, and the promotion of labourers onto machines. Their strike was directed by the Executive Council itself, and was prosecuted with great vigour,including the unusual step of withdrawing society foremen. Nonetheless, the firm was able to keep going quite

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43 Webb Coll. EA XVI, f. 6, pp. 54-61, 63-68; ASE ODD 5 (W. Midlands), ASE QR June 1893; G.R. Carter, 'The Cycle Industry' in Freeman and Webb, Seasonal Trades; F. Carr, Engineering Workers and the Rise of Labour in Coventry, 1914-39, (Warwick Ph.D. Thesis, 1979), ch.1.

44 Webb Coll. EA, f. 6, pp.42-53, 68c.

successfully with blackleg labour, much of it drawn from their own labourers and handymen; the union was thoroughly defeated after a ten month strike and many of the strikers were not reemployed.[45] The defeat of the skilled men in this dispute despite the official support of the national union, symbolised to many the fragility of craft regulation in engineering, and formed a leading factor promoting sentiment within the union for an opening of its ranks to lower grades of workers which would surface in Tom Mann's candidacy for General Secretary in 1892.[46]

Perhaps the most crucial weakness of craft regulation in engineering lay in the ASE's inability to control apprenticeship effectively. In many respects control of apprenticeship was the linchpin of craft regulation, providing the key not only to the short-term market position of craftsmen but also to the long-term control of the labour market. The multiplication, of apprentices, and with them unapprenticed boy labour, was a source of cheap labour which could depress journeymen's earnings and weaken their bargaining position. In this vein, a Scottish representative of the ASE told the Royal Commission on Labour that "Very nearly half" of all apprentices[47]

> ...do not follow the trade for a considerable time, and you will find in time of prosperity there is a great number of people come into it, and they do odd jobs here and there, and instead of getting up the wages you will find the result is that the employer has them all at command, and so does not require to raise the wages.

In the long run, moreover, this practice would overstock the labour market, often with badly trained youths who had not received a general training because

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[45] ASE MR Dec. 1889; Abstract of Proceedings of ASE Local Executive Council, 1888-90, pp.18-24; Jefferys, Engineers, p.101; Weekes, ASE, ch.1; Burgess, Industrial Relations, p.50.

[46] See below, pp.181-85.

[47] J. Lindsay to RC on Labour, Group A, q. 23,289.

of employers' determination to use them as cheap labour, and were therefore a constant danger to the standard rate. As the Steam Engine Makers' Society (SEMS) put it in 1880:[48]

> It used to be the custom on youth being put to the trade to be taught all its branches but that custom has given way to the subdivision of labour which prevails in all engineering firms now. This is an evil for the workman which has already borne fruit, for whenever a dispute takes place between our members and their employers, there are hundreds to be found ready to take over places, and each claiming to be a skilled mechanic, yet on inquiry being made it is found that they are those who have been brought up on one class of work alone.

Apprentices and boy labour could also undermine craft regulation in other ways, since like handymen they were more likely to accept piecework as well as extensive overtime.[49] Finally, as we have seen, apprenticeship was the crucial context in which craft values were passed on to the next generation, so that the subversion of the institution threatened not only the future state of the labour market but also the reproduction of the craft community itself. Historically speaking, it is noteworthy that the trades who were able to maintain a substantial degree of craft regulation into the 20th century were precisely those, who, like the printers and the boilermakers, were able to maintain control over apprenticeship; it is this monopoly of labour supply which forms the basis of the exceptional power of the craft unions on Fleet Street today.[50]

Though the ASE had rescinded its apprenticeship rule in 1852, the union nonetheless sought informally to enforce a ratio of one apprentice to four journeymen wherever possible; even in the 1890s, the union saw 1:3 as a maximum.

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[48] SEMS AR 1880, quoted in Reid, Shipbuilding, p.162.

[49] Lindsay to RC on Labour, Group A, qs. 22,765, 23,022, and Webb Coll. EA VII, f. 2, p.139, quoted in Reid, Shipbuilding, p.163.

[50] Sisson, Fleet Street.

Surveys conducted by the ASE in 1886 and 1891-2, and by the Webbs' researcher Frank Galton in 1893-4, however, revealed the disarray of apprenticeship limitation in practice. Only in a very few centres did employers explicitly accept a fixed ratio of apprentices to journeymen: in the small ports of South Wales - Cardiff, Barry, Newport, and from the later 90s, Swansea, a 1:4 ratio was enforced; in Workington and Hartlepool the limit was 1:2 (though in the latter case the employers were evading the rule by the mid 90s); and the SEMS reported a 1:3 limit in Blackburn.[51] Elsewhere, apprentices and boys proliferated, reaching 6:1 in some departments. In Manchester, for example, the District Committee sought to enforce a 1:2 ratio with little success: in some branches of cotton machinery the ratio was more like 3:1; in Dundee, the ratio in good times was 1:2, but in slumps 3:1; the average in Scotland as a whole was in the area of 1:2.[52] The Managing Director of a large modern firm like Armstrong's, which had sought for decades to gain control of apprenticeship by recruiting from the sons of its workmen whether craftsmen or not, wrote to the Webbs that he could not for tactical reasons disclose the exact number of his apprentices but "I take as many as I dare"; an ASE survey in 1894 found that in five shops in the Elswick Ordnance Works, there were 365 apprentices to 482 ASE members and 103 adult non-unionists.[53] In the early 90s, the Armstrong men

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51 On South Wales, see Webb Coll. EA XVI, f. 6, pp.42-53; ASE QR Sept. 1894,. MJ & R Aug. 1899; de Rousiers, Trade-unionisme, p.275. On Hartlepool, Workington, and Blackburn, see submissions by ASE and SEMS to RC on the Depression, Second Report, App.II; for employers' evasions in Hartlepool, ASE QR June 1894.

52 ASE AR 1894, p.xi; Whittaker to RC on Labour, Group A, qs. 22, 762-64; Breedon (Manchester ASE DC) to Webbs, Webb Coll. EA XVI, f.6; Lindsay (ASE DC Dundee) to RC on Labour, Group A, q. 23289.

53 Webb Coll. EA XVI, f. 18, letter from Col. Dyer to B. Potter, 15.10.1891; ASE QR June 1894; see also the testimony of Noble to RC on Labour, Group A, qs. 215, 213-19. Cochrane, Early History of Elswick, p.48, notes the prevalence of internal recruitment at Elswick, and a preliminary analysis by K. McClelland of a register of apprentices in the Armstrong papers in Newcastle covering the period 1856-1893 suggests that by 1871, the fact that a prospective apprentice' father worked for the firm was considerably more important in securing admissic than the father's occupation as such. I am extremely grateful to Mr McClelland for sharing the preliminary results of his research.

would feel the effects of the proliferation of apprentices in the works most acutely: after a series of strikes concerning overtime and demarcation on the Tyne in 1890-2, craftsmen at Armstrongs claimed that they found 24% of their jobs had been taken over by apprentices and boys. As a result, the ASE on the Tyne launched a special union for apprentices.[54]

The ASE's failure to maintain restrictions on the number of apprentices was particularly striking by comparison with the success of its rival, the Boilermakers and Iron and Steel Shipbuilders, which in the 1880s and 90s was able to force employers to accept a ratio of 2 apprentices to seven journeymen.[55] In Sunderland in 1883, when employers sought to transfer the apprentices driven out of the shipyards by their agreement with the Boilermakers to the engine shops, the ASE struck in pursuit of a fixed ratio of 1:3. The employers fiercely resisted this claim, believing, as one of their representatives later told the Royal Commission on Labour:[56]

> The practical effect...would be that the general standard of wages would be forced up in the first place without any corresponding benefit to themselves. They practically looked upon the demand to restrict the apprentices as an invasion of their just right to conduct their works in such a way as they though fit, subject to the existing law of the land.

The Sunderland strike dragged on into mid-1885 without the skilled men being able to shake the employers' resolve; in the end the men were forced to concede

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[54] Glennie to RC on Labour, Group A, qs. 23,069-70, 234, 237-38; reply by Noble, ibid., q. 25,217.

[55] Reid, Shipbuilding, pp.139-42; Pollard and Robertson, Shipbuilding, pp.154-56; de Rousiers, Trade-unionisme, chs. 7-8.

[56] J. Haswell, (Secretary of Wear Shipbuilders' Association and Sunderland ITEA), to RC on Labour, Group A, q. 25, 708.

the employers' right to employ as many apprentices as they wished.[57]

Along with piecework, apprenticeship, machine manning, and other issues which had receded into the background, during the more prosperous 50s and 60s, systematic overtime had once again become a significant bone of contention by the 80s. The depression itself encouraged employers to work capital equipment for longer hours in upswings in hope of making up losses in slumps; the particular relation of certain sectors to the business cycle, such as machine tools or marine engineering, where customers delayed ordering new equipment until the last moment and then demanded rapid delivery, likewise pressed employers to introduce overtime; insofar as new capital investment was taking place from the late 80s, employers as in the 40s sought to amortise their investments as quickly as possible by working them round the clock. Systematic overtime also formed part of the battery of employers' tactics designed to facilitate the cheapening and intensification of skilled men's labour by weakening their bargaining position. As John Whittaker told the Royal Commission on Labour, overtime and attendant undermanning were favoured by the employer because,[58]

> ...He thinks it preferable to have a man standing outside the gates ready to take the other man's job if he does not altogether suit him; that is he has a standing menace against the other men. There is a surplus labour outside the gate which there would not be if he had them inside the shop.

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[57] See the monthly bulletins issued by the strikers, 1883-85, Bishopsgate Institute Library; ASE MR 1883-85, passim; Jefferys, Engineers, p.101; Burgess, Industrial Relations, p.46.

[58] RC on Labour, Group A, q. 22,869; cf. also ASE AR 1887, pp.x-xi: "It is a well-known fact that extra payment for overtime is no deterrent to this practice, for the employers know they can use the men in the streets against those in the works."

The result of this employers' offensive was a substantial increase in the amount of overtime worked: in 1876 an ASE survey found that only 15% of all workmen, union and non-union alike, worked overtime systematically; by 1892, 61 branches comprising 72% of ASE members reported systematic overtime, while 59, comprising only 16% of the membership worked no overtime at all.[59] Systematic overtime was seen by ASE members as a major contributor to unemployment, as in Dundee where the practice was accompanied by 10% unemployment. The abolition of systematic overtime accordingly emerged in 1887 as the first step in an official campaign against unemployment launched by the ASE Executive whose ultimate goal was the eight hour day.[60] By the early 90s, it had become a general trade union tactic, at least on the Northeast Coast, and official limits were in force in 5 districts comprising 12% of ASE membership.[61] The most heated conflict about overtime limits erupted on the Tyne in 1890-1; as we have noted, the marked and intense impact of the business cycle on production rhythms in shipbuilding and marine engineering gave overtime an added salience in the marine centres. An ASE attempt to enforce a total ban on overtime provoked employers' reprisals, and ultimately a general lockout on the Northeast Coast. The dispute was settled by the arbitration of the Mayor of Newcastle, who arranged a limit of 18 hours overtime per man per month; the employers accepted but evaded the agreement by sacking each man as he reached the 18 hour

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59 Burgess, Industrial Relations, p.25; RC on Labour, Group A, q. 22,659 and ibid., app., pp.466-71.

60 ASE AR 1887, pp.x-xi.

61 RC on Labour, Group A, qs. 23, 041-44, 269-96; ASE AR 1892, p.xviii and 1894, p.xi; de Rousiers, Trade-unionisme, p.281; RC on the Depression, Third Report, evidence of Price, qs. 11,030, 11,106. A minority within the ASE had moved in favour of legally enforced eight hour day, though the union as a whole was not yet committed to this position. Whittaker to RC on Labour, Group A, q. 22,816, and Glennie, ibid., q. 23,301; Weekes, ASE, ch.2.

limit.[62] Elsewhere, the ASE seems to have been able to enforce overtime limits in Cardiff and in the machine tool shops in Manchester; in the locomotive and textile engineering works where there was more repetition work, employers successfully resisted any limit.[63]

Evident in the Tyneside overtime dispute was a disturbing new element, which as in the 1889 Maxim-Nordenfedlt strike bode badly for the future of craft regulation: the growing assertiveness of the less skilled. Engineering labourers and handymen were increasingly less disposed passively to accept the traditional craft practice of taking industrial action unilaterally without regard for the labourers' interests. This traditional view was neatly encapsulated by the craftsmen's response to a question about the labourers' interests at a mass meeting held at Woolwich Arsenal in 1872 to consider the question of the nine hour day:[64]

> The labourers always improved their position in a ratio the same as the mechanic, who had to fight the battle alone.

Since the 1870s the Tyneside and National Labour Union (TNLU, later the National Amalgamated Union of Labour) had been trying to organise the less skilled in the

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62 Glennie to RC on Labour, Group A, qs. 23,068-79; Noble to ibid, q. 25,192-205; de Rousiers, Trade-unionisme, p.281.

63 de Rousiers, Trade-unionisme, p.281. In the preceding discussion, as well as that on apprenticeship and other points in this section, in addition to my own researches I have drawn on A. Reid's careful and insightful analysis of the evidence in the Royal Commission on Labour and in the Webb Collection. See Reid, Shipbuilding, especially pp.156-78. I am extremely grateful to Dr Reid for allowing me to consult his unpublished thesis.

64 Cited in Crossick, Artisan Elite, p.86.

shipyards and engineering workshops of the Northeast Coast with varying degrees of success.[65] Its response to the overtime disputes of 1890-1 was unequivocal:[66]

> We, the members of the mid-Tyne committee of the Tyneside and National Labourers' Union, after having seriously considered our position relating to the impending strike of engineers on the Overtime Question, entirely disagree with the manner in which they are trying to coerce other trades who are directly affected by them into such a position without ever directly consulting them on the matter, and therefore agree with the action of the Federal Board (an organisation formed by the smaller sectional societies on the Northeast Coast in 1889 - JZ) in being brought out on strike under protest until they have recorded their vote for or against such action, and we therefore intend to continue at work as long as the employers find us employment.

Underlying the TNLU's resentment of the ASE's conduct was its disastrous impact on union finances - ASE strikes forced the union to suspend benefits several times during the 1890s - but its attitude was doubtless shared by the mass of labourers and handymen on the Tyne and elsewhere who remained unorganised.[67]

By the early 90s, there were more than half a dozen small societies scattered around the country which catered for the lower grades of engineering workers. The largest of these, the United Machine Workers' Association (UMWA), founded in 1844, had 2,500 members in 1890; other important societies included

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[65] See J. Lynch, 'Skilled and Unskilled Labour in Shipbuilding', Industrial Remuneration Conference (1885); testimony of R. Knight (Boilermakers) and W. Owen, (TNLU) to RC on Labour, Group A; Reid, Shipbuilding, pp.115-27.

[66] Newcastle Chronicle, 2.10.1891 in Webb Coll. EA XVI, f. 6.

[67] Clegg, Fox, and Thompson, Trade Unions, p.89.

the Lancashire-based Amalgamated Society of Metal Planers (1836), and the rapidly growing Birmingham-based Amalgamated Society of Toolmakers (1882) which had 700-800 members in the cycle making districts of the West Midlands, where it was more successful than the ASE. All of these unions found themselves in conflict with the ASE over recruiting, machine manning, and general tactics; the ASMP, for example, found itself in dispute with the ASE in 1884, 1889, and 1895 over planers doing fitters' work. While all of these societies admitted classes of workmen who would not have been eligible for the ASE - mainly planers, shapers, slotters, drillers, and so on - and employed somewhat different methods of organising - the AST, for example, did not expect prospective members to earn the district rate before they could join - it is noteworthy that most did not admit all workers in the industry: the AST described itself as "prepared to admit any man who is a mechanic" and excluded under-drillers, slotters, and planers, together with all others unable to set their own tools. Similarly, because they catered for the most skilled of those excluded from the ASE, these unions more and more came to imitate the latter's tactics, seeking to establish a district rate, as well as to limit piece work and boy labour.[68] Several of these unions went so far as to attempt to bar others from ascending the same ladder as themselves: the AST, for example, spoke of limiting "the influx of unskilled men", while one observer noted of the UMWA,[69]

> ...the curious fact that in several instances these men have protested to their employers against the promotion of other men in the same way they have been advanced.

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[68] On the AST, see Webb Coll. EA XXI, f. 15, and ibid., EB LII, fs. 19, 23; on the UMWA, ibid., EA XVII, fs. 2-3; ASE ODD for West Midlands to Webbs, Webb Coll., EA XVI, f.6, pp.62-68b.

[69] B. Taylor, 'The Blight of Trade Unionism', Cassier's Magazine, Jan. 1898, p.219.

These small unions of the less skilled, however, were by no means the most formidable of the ASE's competitors. Throughout the second half of the 19th century, the ASE found itself in constant competition with smaller more specialised, sectional unions for certain categories of membership and with other metal working trades for certain classes of work, especially in the shipbuilding industry with its complex division of labour. The union competing most closely with the ASE for the same workers was the Steam Engine Makers' Society (SEMS), founded in 1824, whose northern branches had refused to join the amalgamation movement which formed the ASE in 1851. All members of the SEMS were eligible for the ASE, but the former sought to preserve a more exclusive character than the latter: up until 1885 the SEMS saw itself as a union of all-round craftsmen and excluded more specialised men, such as those in textile machinery; even once it accepted that the subdivision of engineering into definite branches was an irreversible fact, the SEMS sought to preserve its character as a union of the most highly skilled men in the industry, eschewing organising efforts and offered higher benefits than the ASE. Despite vigorous efforts by the ASE and later the United Patternmakers' Association (UPA) to attract its members and extinguish the union, the SEMS retained 6,000 members into the 1890s and often collaborated with the ASE on trade movements.[70]

More serious, perhaps, was the persistent conflict between the ASE and other more specialised craft unions whose members were also eligible for the ASE, such as the various societies of blacksmiths,[71] and particularly the

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[70] On the SEMS, see J. Swift (General Secretary SEMS) to RC on Labour, Group A, qs. 23,575 ff.; Webb Coll. EA XV, f. 3; Reid, Shipbuilding, pp. 170-72.

[71] See Reid, Shipbuilding, pp.100-102.

patternmakers. As we noted above,[72] the patternmakers emerged from the reorganisation of the division of labour in the 30s and 40s as the most highly skilled workmen in the industry, responsible as they were for constructing models and prototypes of machinery. In contrast to fitters and turners, the patternmakers worked largely in wood, had a more expensive kit of tools which required insurance, were less vulnerable to unemployment, and were often paid a shilling or two more. Because of their greater skills, the patternmakers were also able to enforce a five year apprenticeship in most areas, and were generally employed on time work. The ASE had organised patternmakers from its inception, but the latter, feeling that the ASE could not effectively pursue their special interests, often held aloof. When they joined, patternmakers tended to form mutual aid clubs within the ASE, offering higher benefits and defending their special interests in collective bargaining; by the mid-60s, such clubs existed in many areas, along with a number of independent local societies.[73] The impetus for the formation of a national union came from the nine hours movement on the Northeast Coast, as patternmakers resented being drawn out on strike over an issue which they felt did not concern them, highlighting their feelings of being swamped by the hordes of fitters and turners in the ASE:[74]

> Patternmakers are essentially a large minority amongst the Engineering craftsmen and there are many points of difference between us and the general bulk of Engineers, and even if we were proportionally represented with the other trades we were still in a hopeless minority and would still have to bow to the will of those who neither understood our interests or sympathised with them, to wit higher skill, tools, different material

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72 See above, pp.

73 Webb Coll. EA, XVII, f. 11, pp.230, ff.; Mosses, Patternmakers, pp.11-25; Reid, Shipbuilding, pp.91-95.

74 G.P. Roberts, in Webb Coll. EA, XVII, f. 11, pp.251-2, quoted in Reid, Shipbuilding, p.92; cf. Mosses, Patternmakers, pp.5-9.

> (Wood), different training, etc...as a craft the Patternmakers thought they were more worthy of consideration than they got from the rank and file of the ASE. These matters gave rise to much misgiving amongst the patternmakers and they saw that if they were to secure any special advantages in the future they would have to secure them apart from the actions of the engineering trades in general.

The UPA launched an active recruiting campaign, maintaining a special 'poaching clause' in their constitution waiving the entrance fee for members joining from other societies, and by the early 90s had enrolled roughly half the pattern-makers in engineering workshops, the rest remaining in the ASE. The ASE responded to these developments by periodic attempts to lure members away from the UPA, and by more concerted efforts to crush the union entirely (as it had a previous London-based local society) by blacklegging on its members during strikes. The most conspicuous example of this kind was a dispute in Belfast in 1891-2 when the ASE actually sent notices around to employers offering to fill the places of striking UPA members.[75]

In some instances the UPA was prepared to cooperate in joint movements with the ASE, as in the 1891 overtime strike on the Northeast Coast.[76] Given this acrimonious history, however, it is hardly surprising that the pattern-makers more often chose to hold aloof, especially where they felt inadequately consulted. In the 1889 Maxim-Nordenfeldt dispute, for example, the UPA refused a request for help from the ASE:[77]

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[75] W. Mosses (UPA, General Secretary) to RC on Labour, Group A, qs. 22, 363-67; ibid., Patternmakers, p.99; UPA MR Apr. 1891 in Webb Coll. EA XVII, f. 11, p.243; ibid., EB XLVIII, ASE, 'Address to Workmen in the Engineering Trade', (1888), f. 13; ibid., f. 18-19; and ibid., XLIX, f. 3. See also, Reid, Shipbuilding, pp.93-94.

[76] UPA MR Feb. 1891 in Webb Coll. EA XVII, f. 11, p.259.

[77] UPA MR Nov. 1889 in Webb Coll. EA XVII, f. 11, p.248.

> As the question (piecework and machine manning - jz) does not affect our men in the slightest degree and as the strike took place before we were ever consulted or even informed, we have declined to have anything to do with the movement.

After what they considered an ill-judged strike on the Tyne in 1888, the UPA and several of the other sectional societies organised a Federal Board to protect their interests against the actions of the larger unions:[78]

> The Sectional Societies, indignant at the arbitrary manner in which the ASE had acted, federated together with the avowed object of resisting a repetition of any such behaviour in case of further wages movements and asserting their right to be consulted before definite action was taken.... It is impossible to dissociate the action of our contemporaries from their recent unsuccessful attempt at amalgamating the various sectional societies, and it would seem that they, finding it impossible to absorb their weaker brethren by fair means, had resolved to shatter the confidence they have in their unions by showing them their impotence to influence of themselves their relations between their employers and members.

Engineering craftsmen's efforts to establish an absolute claim to certain types of work brought them into acute conflict not only with their employers and the less skilled, but also with other groups of craftsmen with similar aims. In the form of demarcation disputes, these conflicts were concentrated in shipbuilding and marine engineering, where the multiplicity of overlapping trades combined with the intensity of cyclical fluctuations to make each craft acutely conscious of the need to draw its lines of demarcation as broadly as possible to maximise employment.[79] In the 1860s, the ASE had been drawn into numerous disputes with the Boilermakers, another of the metal workers' unions which had rejected amalgamation with the ASE in 1851, which died away as the latter union consolidated its hold over the main hull construction operations in iron and steel shipbuilding, leaving a heritage of rivalry and mutual distrust.[80]

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78 UPA MR Jan. 1889, in Webb. Coll. EA XVII, f. 11, p.241; cf. also Clegg, Fox, and Thompson, Trade Unions, pp.131-2.

79 P. Robertson,'Demarcation Disputes in British Shipbuilding Before 1914', International Review of Social History, 20(2) (1975); Brown et al., 'Contours of Solidarity'; Reid, Shipbuilding, pt.II, passim.

80 Reid, Shipbuilding, pp.150-54.

This rivalry, together with the frequent strategic disagreements between the two unions as a result of the ASE's involvement in collective bargaining outside the marine sector, led the ASE, alone of the major unions concerned, to hold aloof from the Federation of Engineering and Shipbuilding Trades (FEST) formed by Robert Knight of the Boilermakers in 1890. The ASE's view, epitomised in its subsequent refusal to join the Central Wages Board established by the Federal Board of Sectional Societies in 1893, was that,[81]

> We do not recognise that the time has yet arrived when our power has diminished to such an extent as to warrant handing over our authority to another body.

This attitude would cost them dearly in the struggle for the eight hour day later in the decade.

With the ASE largely confined to the production and installation of marine engines in the shipbuilding centres, the bulk of its quarrels over demarcation came with the other outfitting trades, such as the plumbers, joiners, and the brassworkers, though disputes also arose with the shipwrights and the tinplate men.[82] The most virulent and destructive demarcation disputes of the period were those between the engineers and the plumbers on the Northeast Coast in 1890-2, which were but a part of a wave of such conflicts sweeping the shipyards at that time: between 1890-3 there was an average of one strike per month over demarcation on the Tyne.[83] Conflicting claims over which trade should control the installation of iron and copper pipes precipitated strikes and lockouts first at Robert Stephenson's and then at Palmer's, with the employers supporting the plumbers, who accused the ASE of trying to poach their members and drive them

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81 ASE QR Dec. 1893; See also Reid, Shipbuilding, pp.150-54.

82 Robertson, 'Demarcation Disputes'.

83 Ibid.

out of the shipyards.[84]

A final but significant measure of the ASE's ability to defend craft regulation lay in the level of unionisation it was able to secure, and the extent to which it could enforce its district rates as standards for the trade. The density of union organisation varied considerably by district and by sector. By all accounts, the ASE was strongest on the Northeast Coast, where estimates of membership ranged from 75 to 90% of those eligible in the early 90s, though even there some shops were markedly better organised than others: Palmer's for example was 100% organised in 1892, while Armstrong's was nearer 60%.[85] Other ASE strongholds included marine centres such as Barrow, Birkenhead, Hull, and the ports of South Wales; Lancashire, where the machine tool shops were better organised than the textile engineering firms; and Scotland, where the overall density was 50% but higher along the Clyde.[86] In general, then, the ASE, as one might expect, retained a reasonable hold on the older engineering centres, except for the railway towns, whose isolation together with the huge scale of the railway works gave the employers a relatively free hand.[87] But in

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84 RC on Labour, Group A, evidence of Glennie, qs. 23,080-144; Price, qs. 26,284-fff.; G. Cherry (General Secretary, Operative Society of Plumbers), qs. 23,339-445. See also ASE MR Feb. 1892; Conference between Employers' Committee and a Deputation of Engineers, Newcastle, 22.4.1892; ITEA and Tyne ASE DC, 'Engineers' and Plumbers' Dispute: Reprinted Correspondence', Webb Coll. EB CXVIII; Robertson, 'Demarcation Disputes', pp.231-32; Reid, Shipbuilding, pp.172-78.

85 Glennie, to RC on Labour, Group A, q. 23,234; Ratcliffe to SC on Government Contracts, qs. 2472, 2569; Price to RC on Labour, Group A, q. 26, 344; Noble to ibid., qs. 25,485-86..

86 On Barrow, ASE QR June 1894; de Rousiers, Trade-unionisme, p.271; on Birkenhead, ibid; South Wales, Webb Coll. EA XVI, f. 6; on Hull, Seaton to RC on Labour, Group A, 25,573; Lancashire, Webb Coll. EA XVI, f. 6 and de Rousiers, Labour Question, pp.266-81, and Trade-unionisme, p.271; Scotland, RC on Labour Group A, q. 23,325. See also the submissions of the ASE to RC on the Depression, Second Report, App.II, and RC on Labour, Group A, Apps.

87 Webb Coll. EA XVI, f.6; Williams, Railway Factory; K. Hudson, Working to Rule, Newton Abbott, 1970.

the newer centres of the industry - Coventry, Birmingham, and London - the ASE had been able to make little headway, and these districts remained almost entirely outside its control.[88] In the industry as a whole, half of the 180,000 fitters and turners recorded by the Census in 1891 remained outside the ranks of the ASE, while the much larger numbers of labourers and handymen added to the pool of potential blacklegs.[89] Despite the prominent part they have played in debates on late 19th century British social and economic history, wages statistics for this period are notoriously perilous ground. Even where timework predominated, as in engineering, trade union standard rates cannot be taken as a reliable guide to earnings; the depressive influence of short-time working and periodic unemployment must always be taken into account. But the efforts of trade unions, particularly the ASE, to establish their district rates as a minimum standard for the trade formed a central component of their attempts to regulate the labour market, so that the generality of their standard rates provides an important indication of the effectiveness of their framework of regulation.

Table 5 compares the existing information on the level of district rates with the figures for average earnings given by the 1886 Wages Census. The comparison between the level of district rates and the generally lower level of average earnings cannot be taken too seriously, since the former generally refer to individual towns and the latter to larger regions which include country districts with lower rates; the contrast attenuates where both figures refer to a single centre. But the more striking finding is the large proportion of

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[88] de Rousiers, Trade-unionisme, p.272; ASE QR June 1893; ASE MJ & R Jan. 1897.

[89] Burgess, Industrial Relations, p.82.

fitters and turners whose earnings fell more than 10% above or below the average (I assume that these were overwhelmingly below); thus beyond the host of machinemen who were paid below the standard rate, some 15 to 30% of fitters and turners in most districts were receiving less than 90% of average earnings, which themselves often lagged behind the standard rate. Only in well organised centres such as London and Manchester did these deviations fall under 15% for both fitters and turners. Thus despite the small size of the sample (2,601 turners and 4,946 fitters out of 54,141 engineering workers), and the choice of an unusually depressed year, these figures suggest that the ASE was encountering significant difficulties in enforcing its district rates, especially outside the larger industrial centres.

By the 1890s, therefore, craft regulation in engineering was clearly in a precarious condition. While the ASE remained one of the largest, wealthiest, and best-organised trade unions in Britain despite its loose and decentralised structure, with 100% membership among skilled men in many of the largest shops, it was unable to prevent the extension of piecework, systematic overtime, and boy labour, or to enforce restrictions on apprenticeship. Employers' efforts to cheapen and intensify the skilled men's labour were tending, as Alastair Reid has observed, "...to create a workforce of young, strong, detail labourers and to push out the older men with greater degrees of all round skill".[90] As an unemployed member of the ASE told the Royal Commission on Labour:[91]

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[90] A. Reid, 'Industrial Relations in the British Shipbuilding Industry, 1880-1920', (unpublished manuscript, Cambridge, 1979), pt.II, p.165.

[91] G. Clarke to RC on Labour, Group A, q. 23, 305.

> In our trade a man is no good except during 10 years of his life. Before he is 30 he is told he is inexperienced, and the employer will not give him the fair rate of wages, and after he is 40 they say he is too old.

This claim was corroborated by J. Swift of the SEMS:[92]

> The men are much harder worked and kept under closer surveillance, whilst the preference for young and strong men is very marked, rather than men of mature years, ability, and experience, and the need for spectacles by a workman, in many firms, results in his removal.

Moreover, skilled engineers' lines of demarcation were complex and difficult to police, an ambiguity which led them into conflict with most of the related skilled trades with whom they competed for jobs and members. Similarly the previous wave of technical change in the 1830s and 40s had ensconced within the division of labour a class of less skilled men whose promotion prospects were blocked by the exclusive practices of the ASE and who would become a real threat once further technical change called the existing division of labour into question. Thus the onset of a renewed wave of technical and organisational change in the 1890s would find skilled engineers and the ASE vulnerable to a major employers' offensive, and badly placed to maintain their craft position in the next phase of the division of labour.

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92 Ibid., q. 23,612. For other references to the importance of spectacles, see Reid, Shipbuilding, p.161.

Printing

During the second half of the 19th century, skilled compositors, like their engineering counterparts, found their framework of craft regulation increasingly challenged by employers' efforts to cheapen and intensify their labour. Whereas in engineering the sources of employers' pressure lay in the squeeze on profits resulting from the great depression and the rising cost of skilled labour relative to productivity, together with fears of foreign competition, in newspaper and periodical printing the central issue was the inability of the traditional division of labour in the composing room to keep pace with the rapid increase in demand and the technical changes in other parts of the production process. While printing employers experimented with methods of mechanising composition with increasing vigour from the 1860s onwards, no technically and economically viable solution was available before the invention of the linotype in America in the late 80s. In book and jobbing printing, moreover, the larger employers were faced with declining profit margins and with competition, not from foreign manufacturers using a more advanced division of labour, but rather from provincial plants with access to cheaper and more docile labour. But in each case printing employers, much more than their engineering counterparts, were forced to seek what advantages could be gained by nibbling at the framework of craft regulation within the structure of the existing division of labour.

While all printing employers were naturally concerned both to speed up production and to reduce labour costs, those in different sectors had different priorities. The vast expansion in the output of the printing press, whose

capacity grew tenfold between 1850 and 1900, with the largest gains brought by the introduction of web-fed rotary machines in the 1880s, had a double impact on the relation of the composing room to the rest of the printing process. On the one hand, by increasing the output of printed matter relative to a given body of composed type, the larger presses reduced the weight of composing room costs in the total expenses of a printing firm; on the other, by augmenting the speed and volume of press work, they drew attention to the composing room as a major bottleneck for more rapid production runs.[93] Thus on newspapers and periodicals where speed of production was of the essence, and where buoyant profits minimised the need to reduce labour costs, employers concentrated their attention on accelerating and intensifying hand composition. But where the demand for the product was less urgent, and where profits were declining, as in the large book and jobbing firms, employers made the reduction of composing room costs a higher priority. Finally, in the many offices unable to afford mechanisation, the introduction of the new presses by their larger competitors created additional pressures both to cheapen and to intensify hand compositors' labour if these enterprises were to remain afloat.

Among the most important methods used by employers to speed up work and cut labour costs in the composing room was the manipulation of systems of wage payment and supervision. Taken out of context, neither piecework nor timework offers any special advantage to workers or employer: everything depends on how the final price is arrived at and how much work is expected in return.

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93 On the introduction of rotary presses and composing room costs, see Alford, Letterpress Printing, pp.36-44.

If, for example, the employer can arrange to pay only for the work he requires, shifting the burden of fluctuations in demand and interruptions in production onto the worker, piecework may be the most advantageous; if, on the other hand he can obtain for time wages the level of effort which has customarily carried with it higher piecework wages, then time payment may be preferable. From the workers' perspective, timework offers at least a guaranteed standard of earnings, while piecework carries with it the dangers of sweating and casualisation; where workers are well-organised, however, piecework may allow their wages to keep pace with the employer's demands for greater effort and higher output, especially where the latter rank above the reduction of labour costs in managerial priorities.

In printing, London had traditionally been the centre of piecework, with the piece hand paid so much per 1000 'ens' according to the provision of the London Scale of Prices; the provinces were dominated by time or 'establishment' work, with the 'stab' hand receiving a fixed minimum wage for a fixed working week. From the middle of the 19th century, however, there was a certain convergence, as stab work penetrated London and piecework the provinces, though Manchester, the stronghold of the Typographical Association, remained overwhelmingly a stab town.[94] In 1877, a survey of 320 offices conducted by the LSC reported 3,192 compositors on stab to 2,079 paid by the piece, and its submission to the 1886 Royal Commission on the Depression lamented that,[95]

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[94] On the rise of piecework in the provinces, see Musson, TA, pp.197-98.

[95] RC on the Depression, Second Report, App.II, p.79; LSC Special Report 1877, quoted in Webb Coll. EA XXI, p.290, which lists the number of stab and piece hands in a dozen large houses, confirming the split between daily newspapers and the rest; LSC AR 1885, quoted by Cannon, Skilled Worker, p.69; F. Willis, 'Piece and Stab in One House', Vigilance Gazette, Dec. 1888; LSC memorial 1890, in Howe, London Compositor, p.323; Printing News, Dec. 1894, pp.6-11. By 1897, the former Secretary of the LSC could report to the Webbs that 75% of LSC members worked on stab, C.J. Drummond to Webbs, 26.3.1897, Webb Coll. EA XXI, p.327.

> Formerly compositors in the metropolis were entirely employed on piecework, but the tendency of late years has been to have a large amount of work done on the 'establishment'; in fact, at the present time, more than 50 percent of the book, jobbing, and weekly newspaper work is produced in that way, the daily newspapers, however, being still exclusively done on the piece.

In general, daily newspapers, where compositors were well-organised, the pace of work intense, and employers able to pay, were worked on the piece, while the more varied and less remunerative work in book, jobbing, and periodical offices was more often done on stab.

It was the growth of what came to be known as the 'mixed system', the 'dual system', or 'piece-stab', rather than the simple extension of piecework to stab districts or vice versa which constituted the main thrust of the employers' enchroachments on craft regulation. This system, whereby stab and piece hands worked side by side in the same printing office or 'house', was disadvantageous to skilled compositors in several respects. Employers anxious to cut labour costs arranged the distribution of copy so that the 'fat' and well remunerated jobs were given to the stab hands and apprentices, while the piece hands were saddled with the more time consuming and poorly remunerated work. (On newspapers, where speed was of greater importance, the piece hands would be given the simpler and more repetitive work, while the more complex tasks might be done on stab; thus the demands of speed and economy might run in opposite directions.) Thus the LSC complained to the Royal Commission on the Depression that the increase in stab work had[96]

> ...resulted in a great injustice to the compositor, for...if he be employed on the piece he too frequently obtains only such work as the employer would not find profitable to have done on the 'establishment'.

A contributor to the Vigilance Gazette echoed this grievance:[97]

> ...Any work up to, or slightly above, the average is given to the 'stab', with a driving clicker (printing foreman responsible for the distribution of copy, jz), while the piece hands are given the

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[96] RC on the Depression, Second Report, App.II, p.79.

[97] Vigilance Gazette, June 1888; cf. STC leader Jan. 1898.

refuse, or what cannot be done profitably on stab.

Similarly, a speaker at an LSC Delegate Meeting in 1890 charged that,[98]

> In a number of offices, stab hands were kept busily engaged while the piece hands were made mere conveniences, who sat in their frames until all the fat of the work had been given out.

Consequently, one of the central demands of piece compositors during this period was for a fair division of copy. Delegates to the 1861 TA Delegate Meeting proposed "that in mixed establishments...the piece hands take copy in the same manner as the "stab, so that fat and lean be equally divided", though the union felt itself too weak to put this resolution into effect.[99] Similarly the LSC News Scale of 1868 contained a provision for fair access to copy for piece hands, a demand reiterated in their 1874 memorial to the proprietors of weekly newspapers; analogous grievances over the division of copy led to the closure of the Scotsman offices to STA members in 1872.[100]

The structure of supervision could exacerbate these grievances over the distribution of copy. Where compositors were well organised, as in those houses where the rules of the LSC were successfully enforced, piecework was administered by the members of the work group or 'companionship' themselves, a system known as 'working in pocket'. In such cases,[101]

> ...Each group enjoys the right of appointing its own foreman, subject to the veto on reasonable grounds of the employers. The 'clicker' thus appointed is the recognised intermediary between the master printer and the companionship; his actions are under the control of his companions, by whom he is remunerated on such terms as may be mutually agreed upon.

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98 Vigilance Gazette, Feb. 1890.

99 Musson, TA, p.203.

100 Howe, London Compositor, pp.440, 445; STC Sept. 1872; A. Ross (Edinburgh Typographical Society) to RC on Labour, Group C, q. 23,275.

101 Schloss, Remuneration, p.91; for chapel rules providing for the election of clickers by the companionship, see Rules of Compositors' Chapel, Roworth's, C.J. Drummond, Father of the Chapel, 1.11.77, in Webb Coll. EC 76, f. 7.

Where employers were able to gain greater control over the organisation of work, as was increasingly the case even in London by the 80s, they appointed the clickers themselves. Since clickers were responsible for the distribution of copy, this often resulted in favouritism and an attendant erosion of union authority. The unions, therefore sought with limited success to procure the 'clamping' or 'boxing' of copy, with access governed by order of finished copy in strict sequence.[102]

Even more important than the problem of the division of copy in mixed houses was that of 'slating': while the stab hand was supplied with a steady supply of copy, the piece hand might spend a large portion of time waiting for copy, idle and unpaid. As each 'comp' finished his 'take' he would write his name on a slate to reserve the next available copy. This system was especially prevalent on daily newspapers, where the flow of copy was most irregular: piece work therefore enabled the proprietor to compel the compositors to remain in the early hours in case of last minute revisions, at no cost to himself.[103] Since a piece compositor could spend as much as 25% of his time 'on the slate', this practice could severely depress his earnings, tending toward casualisation in extreme cases. One LSC member bitterly noted in 1888:[104]

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102 Vigilance Gazette, July 1888, p.22; Musson TA, p.204. A former Secretary of the LSC claimed in 1850 that employers' control of clicking was leading to subdivision of labour and declining skill levels, Edwards, 'The Disease and The Remedy', (1850). For other complaints on favouritism by clickers in non-union houses, see LSC, 'Conditions of Working on the Globe and the People' LSC Trade Reports, 1892, and the testimony of J. Perkes on Eyre and Spottiswoode's Queen's Printer's chapel, SC on Stationery Contracts, qs. 2571-83.

103 'Report of Slating Conference', LSC Trade Reports 1889; LSC News Department, memorial 1890, in Howe, London Compositor, Document CXIV.

104 F. Willis, 'Piece and Stab in One House', Vigilance Gazette, Nov. 1888; 'Report of Slating Conference'.

> ...how difficult it is for our piece workers to earn, even when fully employed, what would only be considered labourers' wages in many trades...

Despite the virulence of complaints from London, the effects of piece-stab on compositors' earnings were most keenly felt in the provinces, especially where weaker organisation left compositors more vulnerable to employers' pressure. In Edinburgh, where the compositors' position was undermined by the presence of several hundred female competitors, a survey taken by the STA showed that 26% of the sample were earning less than 20s weekly, while only 30% were earning the full stab rate of 30s.[105]

In addition to depressing piece hands' earnings, piece-stab intensified the pace of work for all compositors, as the piece hands strained to compose the maximum possible when copy was available, while employers expected their stab hands to produce more than the piece value of their wages if they hoped to retain their more secure position. According to the LSC,[106]

> With the increase of 'establishment' work the tendency is in the direction of increased production...the compositor...employed on the establishment is, as a rule, expected to earn considerably more than the wages he receives....

In some cases, stab hands were actually expected to write a bill for their work at London Scale prices of a minimum of 10s more than their actual wages.[107]

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105 STC Dec. 1890; Gray, Labour Aristocracy, pp.57-60; Gillespie, STA, pp.72-76; letter to TC Aug. 1892, p.6.

106 LSC Submission to RC Depression, Second Report, App. II, p.79.

107 LSC News Department, memorial 1874, in Howe, London Compositor, p.441; T.A.C. De Vere-Artlett, 'Piece-Stab', Printing News, Feb. 1893; letter signed 'piece-stabber', ibid., Sept. 1893, and the subsequent correspondence, ibid., 1893-93; T.E. Naylor, 'Report on Casual Labour and Piece-Stab', 4.6.1907, LSC Trade Reports, 1907.

In no small measure, then, the growth of piece-stab was responsible for the system of 'high pressure' production increasingly deplored by compositors from the 1880s:[108]

> Most of our good old-fashioned firms seem to be fast departing from their old mode of treating their employees, and in place thereof, to be successfully introducing what they term reforms, most of which have for their object the endeavour to get as much high-pressure work as they possibly can out of those they employ for as little payment as they are obliged to give in return.

In opposition to these trends, compositors in London and the provinces alike refused to sanction any form of 'task work' - a fixed minimum output for stab hands - arguing that high output should be paid for through piece rates. At the same time, the unions rejected bonuses for increased output as increasing the discretionary power of the employer and a lever for the intensification of work.[109] While the TA officially opposed all 'limit systems', rank and file compositors undoubtedly restricted output in practice, as the numerous complaints of employers attest; the LSC went so far as to adopt a rule in 1895 "that no member produce more than what has been agreed to by the chapel as to what shall constitute a fair day's work."[110]

In addition to opposing bonuses and task work and seeking to ensure fair distribution of copy between stab and piece hands, the typographical unions also campaigned for payment for 'standing time'. In London, piece hands on daily and

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108 F. Willis, The Present Position and Future Prospects of the LSC, (1881); cf. also 'High Pressure', STC, Mar. 1885.

109 TA Executive Council Minutes, 18.10.1890, 6.3.1893, 17.6.1893; J. Eddy (Glasgow Typographical Society) to RC on Labour, Group C, q. 27,281.

110 TA Executive Council Minutes, 2.11.1878, 25.2.1893, 19.2.1898, cited by Musson, TA., p.200; 'Report to LSC Quarterly Delegate Meeting' 6.11.1895, LSC Trade Reports, 1895.

weekly newspapers included demands for payment for time spent on the slate in the memorials of 1874, 1889, and 1890. The 1891 News Scale, accepted by the employers, promised redress in the form of 3d per hour for all time spent in the office beyond nine hours working and one and a half 'cut' (waiting for copy), though it is unclear how far this concession was implemented in practice.[111] The 1891 TA Delegate Meeting enacted a similar rule for payment for standing time, though the Executive noted the next year that few branches had been able to enforce it.[112] In Edinburgh, compositors' efforts to secure payment for standing time precipitated a major dispute at the Evening News, which resulted in a victory for the proprietors.[113]

While all compositors were agreed in their disapproval of the mixed system, a marked division existed within their ranks as to the respective merits of each system taken on its own, a split which naturally led to strategic disagreements as well. These internal debates shed an interesting light on the complexities of 19th century craftsmen's attitudes to piecework, showing that shared assumptions about the nature of craft identity could lead to contradictory practical orientations in the context of different traditions, levels of organisation, and material circumstances. On the whole, these divisions followed the traditional boundaries between piece and stab districts, with London compositors supporting piecework against the objections of their provincial

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111 Howe, London Compositor, pp.438-90.

112 TA Executive Council Minutes, 2.1.1892; Musson TA, pp.203-5.

113 Ross to RC on Labour, Group C, qs. 23,275-80.

counterparts, though dissenting views could be found in each union.

The critics of piecework and its defenders alike deployed a combination of economic and moral arguments in support of their positions.[114] Piecework, charged its opponents, contained an intrinsic tendency to depress wages, because in the absence of close regulation it promoted casualisation and was open to abuses such as unpaid slating:

> From a variety of causes piecework, year by year becomes less remunerative. The tendency is toward larger staffs and correspondingly smaller 'takes' to reduce 'standing time'. Where a large staff cannot be accommodated we have brought into requisition that most pitiable, most deplorable, and most degrading elder son of piecework -'the grass hand' (casual - jz).[115]

Morally based objections to piecework focused on its subversive effects on the craft community: as in engineering, skilled workers charged that piecework promoted competition between craftsmen, intensified work, weakened the position of older and slower workers, and lowered standards of craftsmanship. Despite their later provenance, the anti-piecework resolutions presented at the 1913 TA Delegate Meeting bring out these objections most forcefully:[116]

> Piecework does not produce the better compositor; on the contrary, piecework is conducive to slovenliness. The piece hand is dominated by the idea of gaining a wage and to do this he frequently robs his fellow worker by hoarding up his sorts. (individual types, jz)

One delegate's moral indignation moved him so far as to damn the system as "the Devil's own work".[117]

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[114] For the relationship between these types of arguments in trade union attitudes generally, see Schloss Remuneration, ch.5.

[115] TC Aug. 1892, p.6.

[116] Resolution of Plymouth Branch, Report of TA Delegate Meeting 1913, pp.107-9.

[117] Resolution of Bristol Branch, ibid.; for other examples of moral arguments against piecework, see Vigilance Gazette, Nov. 1888, p.13; STC Oct. 1892.

Where compositors were well organised and the pace of work intense, as on daily newspapers, especially in London where compositors often elected their own clickers, piecework was vigorously defended as the only means of ensuring that high pressure work would yield high pay. Thus a mass meeting of London compositors in 1899 overwhelmingly rejected a demand by newspaper proprietors for a stab rate on daily newspapers in a language bristling with the rhetoric of the customary rights of the independent artisan: timework would deny them "the full value of their labour" guaranteed to them by piecework, "the recognised system from what may almost be termed time immemorial".[118] Another defender of piecework argued in a similar vein that,[119]

> ...On piecework, there is the uncertainty of any regular guarantee of a full week's money, but at the same time, men are more independent and the present harsh discipline which has transformed modern printing offices into mere prisons where men are afraid to look, let alone speak, to each other, was scarcely known to exist.

Defenders of piecework, like its opponents, drew on the values of solidarity to support their position: the elimination of piecework would drive older and slower workers from the printing offices if employers were expected to pay them as much as younger men; piecework allowed them to stay on with reduced earnings.[120]

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118 LSC MS. 'Report to Special General Meeting, 21.10.99' in LSC Special Reports, MRC 28/CO/1/10/6; cf. also the broadsheet issued by the Daily News 'ship, 'The Daily News and Its 58th Anniversary' (1904), Webb Coll. EB LXXVII.

119 Letter to Printing News, Dec. 1894, p.13.

120 Report of Conference of the Typographical Societies of the UK, 21-23 Oct. 1886, pp.22-23; LSC Trade Reports 1886; Printing News, Dec. 1894, p.13; for an employer's perspective, see Fraser to Fair Wages Committee, q. 4641.

Thus depending on the nature of the work and on the effectiveness of craft regulation, not only compositors' material interests but also their interpretation of the values of autonomy and solidarity could lead them to take up divergent positions on piecework.[121] Ultimately, these internal disagreements blocked any systematic campaign by the typographical unions to impose a single form of remuneration on the master printers in order to eliminate the abuses of piece-stab. Resolutions to abolish piecework entirely were presented to the 1886 general conference of Typographical Societies, and to 1898, 1903, and 1913 TA Delegate Meetings; such proposals were actually passed by regional conferences of the TA in 1896-99, and by the union's Representative Council in 1901.[122] Despite these vocal pressures, opposition by news compositors usually prevented any of the typographical unions from actually forbidding its members to accept piecework. Thus in 1869, an Edinburgh sub-committee convened to consider the abolition of piecework deemed it "inexpedient and impolitic to interfere with the existing mode of working in Edinburgh printing offices".[123] Only in Dublin in 1890 did the local independent typographical society strike to abolish piecework outright, motivated by grievances over the distribution of copy; in the event they settled for a small advance in piece prices.[124]

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121 The Webbs believed that piecework was generally acceptable to compositors because of the absence of mechanisation and driving overseers, though they were aware of the existence of piece-stab. Industrial Democracy, pp.298-99. As we have seen, this is too sanguine a view of conditions in printing offices of the period; where compositors could not control the pace of work and the administration of piece payment they pressed for time rates to maintain minimum earnings.

122 LSC Trade Reports 1886, TC Oct. 1897; TA RC Report 1901, p.18; Musson TA p.200.

123 Gillespie, STA, p.75.

124 Evidence of W. Merry, (Dublin Typographers' Providential Society) to RC on Labour, Group C, qs. 27,451-503; the Edinburgh piece hands launched a movement for the abolition of piecework in 1898 which was ignored by the employers. MPA MC Nov. 1898.

Closely bound up with piece-stab as a method of cheapening and intensifying compositors' labour was what one commentator called its "most pitiable, most deplorable, and most degrading elder son": casual labour. As in engineering, the pattern of unemployment and underemployment was closely connected with the pattern of fluctuations in demand and output. In contrast to engineering, however, the most important such fluctuations in printing were not so much the pronounced cyclical swings which dominated the capital goods industries, but rather the seasonal cycle specific to the printing industry itself. As we saw in Chapter I, the seasonal cycle in printing revolved around the movement of demand for advertisements and publicity, in London, the 'London Season' and the parliamentary timetable made their own contribution to fluctuations in demand. Finally, on daily newspapers, the unpredictable arrival of copy, dependent as it was on newsworthy events outside the printing industry itself, produced sudden changes in the size and layout of editions which often required newspapers to take on extra hands at the last moment.

In this context, various forms of casuality represented a major threat to compositors' earnings and to their framework of craft regulation, though one London master printer doubtless exaggerated when he asked "Is there another trade under the sun with a larger proportion of casually employed workmen?"[125] According to an estimate by Musson based on the TA's records, the level of casuality itself fluctuated with the movement of the business cycle: in good

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125 F. Gaskell, Experience and Maxims of a Practical Printer (1890), p.38; but cf. the experience of the truly casual trades as set out in Stedman Jones, Outcast London, pt.I.

years, one-eighth to one-fifth of all TA members might be in casual employment; in slumps, the proportion might rise as high as one-third.[126] A survey taken by the TA itself in 1892, more or less an average year, showed that in the 12 branches of the union with more than 200 members, some 20.3% were casually employed: the proportions varied from 3.6% in Oxford to 31% in Manchester. (See Table 6) There are no comparable estimates for the LSC or the STA before the turn of the century; impressionistic evidence suggests that the pattern in these districts was roughly similar to that reported by the TA.[127] These figures were likewise broadly confirmed by the Board of Trade's 1906 Report of an Enquiry into Earnings and Hours of Workpeople, a source which must be used with caution because of its small and not necessarily representative sample and reference to the period after composing machines had been introduced; the result of this survey showed 28.8% of all hand compositors working more or less than a full working week (some of whom were clearly working overtime), and pointed to the connection between piecework and casuality, as 33.7% of piece-workers were working more or less than the standard working week.[128]

The irregular demand for labour on daily newspapers gave rise to the employment of 'grass hands'; originally, compositors not wishing to work on a particular night were allowed to select (and pay) their replacements. A related

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126 Musson, TA, p.103.

127 See Fleet Street, 17.1.1903; Alford, Letterpress Printing, p.187; and Gray, Labour Aristocracy, pp.57-60.

128 1906 Wages Census, Vol. VII, Printing and Paper Trades, pp.29 ff. The Board of Trade survey appears to have overestimated the proportion of newspaper printers because of their easier accessibility; it also recorded only those workers employed during the last week of September 1906, excluding thosecasuals who found no work that week.

practice on weekly papers was the sub-contracting or 'farming' of the entire production process to a single compositor who was responsible for hiring and paying the staff:[129]

> Weekly newspapers are not infrequently 'farmed' by members of the Society (LSC), the farmer paying the full sale price to the compositors engaged. In such cases the farmer takes the newspaper from the proprietor at a fixed price, engages his own compositors, and pays them, the proprietor being perfectly ignorant of the men employed. For example, Lloyd's Newspaper, the Illustrated London News, and the Graphic are farmed, all the compositors being members of this society.

A survey conducted by the LSC News Department in 1891 highlighted the variety of practices in the treatment of casuals. Of the 16 offices reporting, grass hands received a guaranteed amount of copy in six offices; in five no fixed amount was guaranteed; in two some casuals received guarantees while others did not; and in three offices casuality had been abolished altogether. In most cases, grass hands were employed directly by the master printer, though in some offices they were hired instead by the companionship of compositors themselves. It was in the latter instance that the casuals were worst treated: in four of the five offices in which casuals received no guaranteed earnings per shift, the companionship was their employer. Just as the ASE sought to eliminate the exploitation of some of its members under piece-mastering, so the LSC vigorously opposed the employment of grass hands directly by its members: the 1891 News Department report urged that all casuals be hired by the master printer and receive a guaranteed amount of copy, as stipulated in the 1868 News Scale.[130]

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129 C.J. Drummond, (former Secretary of the LSC), quoted in Schloss, Remuneration, p.118. LSC members were forbidden to accept book or jobbing work on a 'farmed' basis. LSC Rules 1886, Rule XLIII.

130 'Report of the Committee on the System of Working in Each Office', Howe, London Compositor, Document CXVI, and ibid., p.452.

The maintenance of a small staff of permanent hands employed on stab, together with the multiplication of insecure pieceworkers, enabled printing employers to weaken the bargaining position of each group and thereby to intensify work and depress wages, as we have seen in our consideration of piece-stab. The full depressive effect of piece-stab on wages, however, was only felt where piecework and casuality were combined. Despite its problems as a source, a wealth of impressionistic evidence confirms the findings of the 1906 Board of Trade Enquiry in this respect: 84.9% of piece compositors earning less than 25s per week were employed less than full time, while 60% of all piece hands working less than full time earned below 25s, a relationship that held throughout the country when adjustments are made for relative wage levels.[131] In this context, efforts to limit the extent of the practice and to secure minimum standards for casuals formed a major concern of the typographical unions. In addition to their attempts to place responsibility for casuals in the hands of the employers, the typographical unions sought to obtain a minimum guarantee of earnings per shift, and to make casual labour more expensive than ordinary labour. At the same time, the unions' more general tactics for maximising employment, such as their attempts to reduce the hours of work and overtime, and their prohibition of 'smooting' (one man working at more than one job) were also designed to limit casuality, while after the turn of the century the LSC would inaugurate a campaign designed to eliminate casuality itself.[132]

Despite the unions' efforts, the persistence of complaints from below bears out the extent to which casuality continued to represent a major source

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131 1906 Wages Census, Printing and Paper Trades: cf. also the survey of Edinburgh pieceworkers' earnings cited above, p.137.

132 Child, Industrial Relations, pp.141-42; Musson, TA, p.206; see below pp.279-80.

of weakness and impoverishment for compositors into the 1890s. One critic of the LSC went so far as to charge that the employers' efforts to cut their labour costs had resulted in the division of union members into three segments: the 'first class' of 'full framers' which controlled the union; "the casual, who is in and out, and who willingly accepts the crumbs that fall from the rich man's table, and even the ordinarily employed piece hand is within this scope"; and last, "men who have neither the advantage of a regular 'grass' or the influence of a 'gift'; men who have to trudge London's radius on the off chance and on their own".[133]

Closely associated with piece-stab and casual labour as a source of underemployment and the intensification of work was systematic overtime. As in engineering, the immediate impetus for systematic overtime came from the erratic timing of demand in the industry:[134]

> with regard to overtime, there is probably no trade that suffers more from the evils arising therefrom - especially systematic overtime - than our own, and while we are not prepared to say that generally speaking the evil is greater today than formerly, still we are convinced that very much of this overtime could and should be avoided. Much of the blame no doubt rests with the public, who, as a result of existing competition, are in some cases promised proofs of their work in a ridiculously short space of time, when a little pressure would induce them to supply the copy earlier; while in other cases they insist upon work being done at overtime rates, when such work could be produced in the ordinary way without the least disadvantage.

Compositors opposed the practice first of all for its effects on the men employed: "The members set their faces against Systematic Overtime, and firmly but respectfully decline to kill themselves in order to live."[135] At the same time,

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133 Fleet Street 17.1.1903; cf. TC Nov-Dec. 1893.

134 LSC memorial 1890, Howe, London Compositor, p.321.

135 Ibid., p.317.

systematic overtime was seen as a contributory factor in unemployment and its reduction formed a key component of the typographical unions' strategies for regulating the labour market: the TA, for example, formulated its restrictions on overtime work in order that "as large a number as possible should find regular employment, rather than that some should be totally unemployed while others are working late and early."[136]

Accordingly, the London Scale fixed charges of 3d per hour for overtime, with prices increasing late at night, while the TA and STA left such regulation to their branches, the largest of which enforced rates comparable to those in London.[137] One means of reducing overtime was to put up its price, and the revised London Scale sharply increased overtime rates in 1891.[138] Nonetheless, an LSC survey in 1892 showed that of 185 chapels with 4,893 members reporting, 98 with 2,965 members worked 'systematic overtime', while 29 worked limited overtime; the average for the two categories combined was 2.13 hours per man each week.[139] With the onset of mechanisation and higher levels of unemployment in the 1890s, printing craftsmen, like their counterparts in engineering began to press for restrictions on overtime, often as part of a wider struggle for the eight hour day to which all three typographical unions had become formally committed in the late 1880s.[140]

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136 TC Nov. 1874, quoted in Musson, TA, p.196.

137 Child, Industrial Relations, p.140; Musson, TA, pp.193-96.

138 Howe, London Compositor, p.353.

139 LSC, 'Report of Sub-Committee on Systematic Overtime', LSC Trade Reports 1892.

140 The LSC voted against a commitment to the legal eight hour day in 1887, but reversed its position in 1889, and its new Secretary, C.W. Bowerman spoke strongly in its favour to the RC on Labour. LSC Trade Reports, 1887, 1889; Vigilance Gazette, May 1888, p.7, June 1. 1888, p.13; RC on Labour, Group C, qs. 22,915-23,155. The TA membership voted narrowly to support the eight hour day in 1888, but its General Secretary, H. Slatter, spoke strongly against it to the Royal Commission; the STA, on the other hand, strongly supported the eight hour day as a cure for unemployment. H. Slatter to RC on Labour, Group C, q. 22,832; Ross to ibid., qs. 23,156-292; STA AR 1885; STC June 1892.

As in engineering the key to the overall effectiveness of craft regulation lay in control over apprenticeship. No subject was more often discussed at union delegate meetings or in union publications, and compositors were unanimous in placing the multiplication of boy labour at the centre of their difficulties in the labour market. The classic analysis encapsulating this view was Edward Edwards' The Disease and the Remedy: An Essay on the Distressed State of the Printing Trade, Proving it to be Mainly Attributed to Excessive Boy Labour .[141] According to Edwards,[142]

> ...The oversupply of apprentices is the cause of the distressed state of the printing trade. No care has been taken to preserve any equality of rule - supply with demand - demand with supply. Boys have been apprenticed to the business with a perfect indifference as to how they were to be employed at the expiration of their servitude, or whether they were mentally capacitate to master the intricacies of the trade....

By 1850, Edwards estimated the number of printing journeymen in the UK at 8,500 compared to 6,000 apprentices, though as one might expect the situation was somewhat better in London, where the numbers were 3,000 to 1,500 respectively. (See Table 7A for a further breakdown)

It was not merely the quantity of apprentices but also their quality which alarmed skilled compositors. The decline of indentured apprenticeships, and still more the diminished technical content of apprenticeship meant that apprenticeship was more and more becoming simply a source of cheap labour rather than a means of imparting technical training. As the LSC told the Royal Commission on the Depression of Trade in 1886:[143]

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141 LSC Prize Essay (1850); a portion is reprinted in Howe, London Compositor, pp.304-8.

142 Ibid., p.9.

143 Submission of LSC to RC on the Depression, Second Report, App.II, p.80.

> Formerly an apprentice was placed under the care of a journeyman, who was responsible to the employer for his proper tuition, and who was remunerated for the extra trouble and loss of time occasioned. At the present time, however, apprentices are too often left to pick up their trade the best way they can, being used by many employers solely for the purpose of profit, and kept to the purely mechanical portion of the trade, instead of being thoroughly taught the various technicalities connected therewith, by which means alone they can become thoroughly competent workmen.

An editorial in Printing News in 1892 put the same point more sharply:[144]

> In offices where work is sub-divided, the average apprentice acquires as much knowledge of his trade as we have of the manners and customs of the uninhabited islands.

Compositors' vigorous opposition to the use of apprentices on daily newspapers and to the growing practice of putting apprentices on piecework stemmed from similar concerns.[145]

The multiplication of badly trained apprentices threatened not only the long-term state of the labour market, but also the immediate bargaining position of the journeymen. Apprentices might be favoured in the distribution of copy, as in Edinburgh, or might actually take over journeymen's jobs as in Leeds, where the local typographical society complained to the Royal Commission on the Depression that,[146]

> ...Of late years there has been a wide spread and constantly increasing tendency on the part of employers to utilise the services of apprentices for the performance of duties which properly ought only to be entrusted to journeymen.... The reason for this irregular practice is, of course, the greater aggrandizement of the employers.

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144 'The Apprentice Question', Printing News, Dec.1894, pp.10-11.

145 'Report of LSC Special Committee on the Apprentice Question' (1877) in Howe, London Compositor, document XCIII; Bowerman to RC on Labour, Group C, qs. 22,945-50; letter to TC June 1891; LTJ Dec. 1906; for a first-hand description of the consequences of piecework apprenticeship for training, see T.A. Jackson, Solo Trumpet (1953), p.25.

146 Leeds Typographical Society Submission to RC on the Depression, Second Report App.II, pp.78, 80.

Particular offenders in this respect were 'turnovers', nominally apprentices who had switched masters, but in general actually serving as partially trained cheap labour.[147]

Each of the typographical unions, therefore, sought to regulate apprenticeship and in particular to restrict the ratio of apprentices to journeymen. From its formation, the TA fixed in its rules a sliding scale limiting the permissible number of apprentices to journeymen to a maximum of three regardless of the size of the firm, tightening its rules in the 1870s to discourage newly established offices from proliferating apprentices. Similarly, from 1873 the STA set a ratio for its branches of 1:3, up to a maximum of 10 in any single office. The LSC, on the other hand, did not have an official rule on apprentice ratios until 1895, when the limit was set at 1:3, which had become considered the customary level.[148] In a similar vein, each union made a seven year apprenticeship a condition for membership and required turnovers employed in society offices to be reindentured to a new seven year term.[149]

As Edwards' figures suggest, however, the typographical unions experienced considerable difficulties during the mid-19th century in enforcing their apprenticeship rules. The crucial problem lay in the multiplicity of small printing offices in country towns outside the reach of union control.[150]

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147 LSC 'Report on the Turnover System' (1867), Howe, London Compositor, pp.308-9; 'Report of Special Committee on Apprenticeship' (1877), ibid., p.313.

148 Child, Industrial Relations, pp.133-34; Musson, TA, Ch.10; Gillespie, STA, Ch.8; Howe and Waite, LSC, p.205.

149 LSC 'Report of Special Committee on the Apprentice Question'; Musson, TA p.217; Gillespie, STA, p.95.

150 Report of TA Delegate Meeting 1877; TC June 1891; Musson, TA, pp.211-12; 'The Apprentice', Printing News, June 1893; Gillespie, STA, p.95.

While in well organised houses in the major centres the number of apprentices might conform to the rule, the influx of apprentices from the small country shops not only undermined the unions' control of the labour market but encouraged employers in the major centres to evade the apprenticeship regulations themselves. As a result, by the mid-1880s, apprenticeship regulation was in disarray, at least outside of London, as the provincial unions' submissions to the Royal Commission on the Depression demonstrate. (See Table 7C) In most towns reporting, the number of apprentices approached if not exceeded the number of journeymen; Liverpool alone among the large printing centres reporting appeared to be maintaining effective limits, with 120 boys and 160 apprentices to 1,260 journeymen. According to surveys conducted by the LSC between 1837 and 1890, the LSC's informal restrictions appear to have been somewhat more successful than the formal rules of their provincial counterparts: in 1880 a sample of 169 offices showed an effective ratio of 1:4 and by 1890 the ratio had improved to 1:4.5. (See Table 7B) Nonetheless, this effectiveness should not be overstated: the LSC's General Secretary, for example, told the Royal Commission on Labour in 1892 that London was abundantly stocked with boy labour; while an LSC survey in 1895 noted that in 17 society offices 278 apprentices were employed to 503 journeymen, an excess of 88 over the newly adopted 1:3 ratio.[151]

The provincial typographical unions not only experienced general difficulties in enforcing their apprenticeship regulations at the level of the labour market as a whole, but also found themselves drawn into frequent confrontations with individual employers. Both the TA and the STA cited apprenticeship as the most

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[151] Bowerman to RC on Labour, Group C, q. 23,050; LSC, 'Report of Sub-Committee on Unemployment', LSC Trade Reports 1895.

frequent source of disputes, most of which they confessed ended in victory for the employers.[152] In this contest, the unions were forced in practice to adopt a more flexible approach, as the TA's General Secretary confessed to the Royal Commission on Labour; where the unions were well organised, however, as in Manchester, Liverpool, and to a lesser extent Glasgow, tighter regulations were enforced.[153] Conversely, in towns where the local typographical society was unable to keep down the number of apprentices, the provincial unions handled the problem by excluding them from the union, as the plaintive testimony of the Secretary of the Waterford Typographical Society, which had 29 journeymen to 42 apprentices, indicates.[154]

The inability of the unions to keep down the number of apprentices appears to have evoked opposite responses in the TA and the STA. In the TA, some branches advocated relaxing the ineffective ratios in order to construct a defensible rule. Thus at the 1877 and 1891 TA Delegate Meetings, resolutions were proposed to extend the ratios on the ground that they were unenforceable, unfair to larger offices, and out of step with the increasing scale of production. In each case, however, the majority of delegates rejected any extension for fear that such measures would only encourage an overall increase in surplus labour by undermining the position of those branches able to enforce the existing rule.[155] While a similar motion was unsuccessfully proposed to the STA Delegate

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152 Slatter to RC on Labour, Group C, q. 22,799; Report of STA Delegate Meeting 1891.

153 RC on Labour, Group C, q. 22,867.

154 Ibid., qs. 27,405-50, cf. above, p.74.

155 Reports of TA Delegate Meetings 1877, 1891; letters to TC June 1891.

meeting in 1877, by the mid-1880s a movement had developed in Scotland to tighten up restrictions on apprenticeship. In 1886, the Aberdeen branch called for a special Delegate Meeting to combat the increase of apprentices in Scotland, and 1889 Delegate Meeting instructed the Executive to enforce the existing rule more strictly. In the context of the onset of a boom in 1889, the STA was able to win strikes over this issue in Aberdeen, Hamilton, and Ayr, leading to a reduction in the number of apprentices in many Scottish towns; Glasgow, for example, claimed by 1889 that its ratio was fully enforced, though in Edinburgh at least half of the offices exceeded the limits, and no maximum per office was enforced.[156] In London, too, the late 1880s saw a tightening of restrictions on apprenticeship as part of a more general refurbishing of union organisation and expansion of membership, a movement which according to Child embraced all the London printing unions, the end result of which was the formal codification of a 1:3 ratio in 1895.

Contrary to the Webbs' belief that the Device of Restriction of Numbers was dying out among compositors,[157] therefore, regulation of apprenticeship seems to have been reviving among the typographical unions from the mid-1880s onward. It continued to be possible for boys simply to 'pick up' the trade and even for non-apprenticed men to get work in many of the printing centres, especially perhaps those organised by the TA; the STA, on the other hand, was revitalising its restrictions in this period and pressure from below was leading the LSC to move towards formal codification of its own limits.

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156 Reports of STA Delegate Meetings 1877, 1889; STA AR 1889; letters to STC June 1885, Dec. 1886; Gillespie, STA, pp.96-98.

157 Industrial Democracy, pp.464-68.

Compositors' struggles to control entry to the trade were not, of course, confined to the restriction of the number of apprentices. Printing craftsmen's claims to control of particular jobs necessarily involved the exclusion of other groups of workers. Unlike engineering, where a previous wave of technical change had established within the workshops a class of semi-skilled workers which could find itself in conflict with craftsmen over access to particular jobs, the static character of the division of labour in the composing room (though not, of course, in the machine room) meant that craftsmen's competitors were drawn from outside the printing offices themselves, from the ranks of non-apprenticed, non-unionised men, and in several areas from women as well. Consequently, in printing, the level of unionisation provides a good indication of the extent to which the compositors' unions were able to enforce their framework of regulation, by keeping out those not already in the industry on the one hand, and by extending their membership to cover workers already there on the other.

Printing offices were divided into 'union' and 'open' houses: in the former a closed shop was operated, while in the latter unionists and non-unionists worked side by side. Little information exists about the relative balance between the two types, though a survey by the TA in 1904 revealed that 1,788 non-unionists were working alongside 12,814 unionists in the offices that were open to their members.[158] It is clear, however, that the unions sought to compel non-members to join, especially in well-organised branches, though their leaders were careful publicly to sanction only moral persuasion; C.W. Bowerman of the LSC, for example, told the Royal Commission on Labour that the union did not conduct strikes against non-unionists. The infrequency of disputes over

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[158] TA, 'Returns of Journeymen and Apprentices', Musson, TA, pp.115-16.

this issue in all three major unions suggests that it would be the non-unionists' violation of union rules rather than their simple presence which might spark a confrontation, much as William Allan described the situation in engineering in the 1860s.[159]

The late 1880s and early 90s saw a general movement in each of the typographical unions toward the renovation of their strained frameworks of regulation through improved organising methods and greater local militancy: it was in this period that certain unions appointed full-time organisers for the first time. In many areas organising drives were launched, and it was for example during this decade that the TA first began to penetrate the Southwest, long recognised as a union black spot.[160] Alongside the tightening of restriction on apprenticeship, the result was a rapid expansion of union membership: between 1880 and 1893 all three unions doubled in size, the LSC from 5,100 to 10,151; the TA from 5,699 to 12,736; and the STA from 1,504 to 3,004.[161]

By 1890, the LSC appears to have unionised some two-thirds of London compositors: its General Secretary asserted in 1896 that there were no more than 3-4,000 compositors outside the union, a contention supported by the author of the article on printing in the Booth survey; only 3 of 20 daily newspapers were run on a non-union basis.[162] In those towns where it maintained a branch,

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159 Ibid., p.114; Bowerman to RC on Labour, Group C, qs. 22,989-91. Cf. also the description of union recruitment in an open house in Warwick in Burnett, Useful Toil, p.335; for Allan's testimony, see above, p.66.

160 Musson, TA, pp.106-7; Child, Industrial Relations, Chs.7-9, passim.

161 Howe and Waite, LSC, p.338; Musson, TA, p.535; STA ARs, 1880, 1893.

162 Bowerman to SC on Stationery Contracts, qs. 409-30, 614-18, 689-96; see also the exchange between T.C. Pigott, Comptroller of the Stationery Office, and G.E. Arkell, in ibid., qs. 35, 39-48, 147-79, 210, 218, 302-48, 1,200-8, 2,418-2,441.

the TA claimed by 1892 to have enrolled 80% of compositors; given the continuing sketchiness of its organisation in the South and Southwest, however, Musson's estimate of two-thirds seems a more likely, perhaps over-generous, global figure.[163] In Glasgow, the STA claimed 95% membership, while in Edinburgh, the weak link in the union, the branch estimated that there were 400 male non-unionists to its 800 members, together with at least 200 women.[164]

Apart from non-unionised men, the main threat to skilled compositors' control of entry to the trade came from women. The main occupation for women in the printing industry as a whole was to be found in bookbinding, but between 1871 and 1891, the Census records an increase in the number of female printers (most of whom would have been employed on composition) from 700 to 4,500 or 5.2% of total employment.[165] Apart from Edinburgh, the main areas in which female compositors were employed were the country towns of England and Scotland, as the submissions to the Royal Commission on the Depression of Trade suggest. (See Table 7C) Even in London, however, there were probably some 200 female compositors by 1890.[166]

The position of the female compositor, together with the fears she engendered among male trade unionists, can best be explored through an examination of the situation in Edinburgh, where the system had developed to

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163 Slatter to RC on Labour, Group C, qs. 22,771-85; Musson, TA, p.115.

164 Ross to Ibid., qs. 23,227-29.

165 Child, Industrial Relations, p.110.

166 The LSC estimated 50 in 1885, AR 1886; Bowerman 100-150 in 1892, RC on Labour, Group C, q. 23,157; Amy Linnett, a collaborator of the Webbs, put the figure at over 200 in 'Women Compositors', Economic Journal Jan. 1892.

its fullest extent. Women were introduced into Edinburgh printing offices in 1872 after the masters' victory in a strike for a 51 hour working week:[167]

> With a depleted membership, with chapels thoroughly disorganised, the branch, for years after the strike, was not in a position to take any effort to remedy the grievances of female labour, which was now rapidly increasing, especially in the larger office.

By the time the system had stabilised in the late 80s, there were some 800 female compositors in Edinburgh, mostly in the large book houses.[168] In most cases, women were confined to straight typesetting, often on reprint or government work, while men performed the heavier tasks of making up and imposing as well as some of the more skilled but less remunerative postions of the work.[169] Thus an STA representative complained to the 1908 Fair Wages Committee:[170]

> ...There is a policy in giving the girls reprint work. It is simple matter and easily got on with. Unfortunately some of our best intellects turn out the most miserable specimens of penmanship conceivable, and some of them are almost indecipherable. The result is that the copy which is not decipherable is given to the piece-work compositor, and he has to make the best of it. If it was a girl she would throw the thing away, put on her hat and away she would go to find other work.... But the stab man, or the man who is being paid a piece-work rate, he has got to do it and get what he can, possibly spending more than half his time in trying to decipher it. There is good reason why the easier work should be thrown to the girls.

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167 'Statement of the Edinburgh Branch on the Female Question', STC Sept. 1904 see also Printers' Register Oct. 1904, suppl.; STA ARs 1871-73; Gillespie, STA, pp.117-20.

168 This figure was confirmed for the following decade by both employer and union representatives to the 1908 Fair Wages Committee: Fraser to ibid., q. 4,622; G. Templeton (General Secretary, STA) to ibid., qs. 2,924-25. Ross of the Edinburgh branch of the STA told the RC on Labour that there were 200 women compositors in the city in 1892, a figure which seems improbably low, particularly since his contention that their number had stabilised would lead one to expect little change between then and 1908. RC on Labour, Group C, qs. 23,227-29.

169 Linnett, 'Women Compositors'; Fraser to Fair Wages Committee, q. 4,583; Templeton to ibid., qs. 2,924-25, 2966-70; Naylor to ibid, qs. 194, 252.

170 Templeton to ibid., q. 2,970.

The testimony of William Fraser, Managing Director of William Neill and Sons, a large Edinburgh book firm, to the Fair Wages Committee in 1908, provides the most detailed description of the position and methods of working of female compositors in the city.[171] Neills employed 100 women compositors, who formed the vast majority of the staff. These were on the whole employed on plain typesetting, as elsewhere in Britain, while men paid on stab wages were responsible for making up, imposing, and the more skilled work of laying out advertisements, as well as for some supervision of the women. But more unusually, women served a three year apprenticeship and were permitted to set all classes of work - "Greek, Hebrew, Algebra, indeed anything you like"; whereas elsewhere in Scotland it seems to have been more common for women to specialise in reprint work, and a training period of twelve months was normal.[172] Similarly, some women became overseers and readers at Neills, while elsewhere in Britain most female compositors left work after marriage.[173]

Half the women at Neills were paid time wages and half by the piece, averaging some 16-18s per week, compared with the union stab rate of 32s. The advantage to the employer, however, was not merely in the lower basic wages of the girls. The employment of women, as a Dublin employer told the Fair Wages Committee, allowed the masters to evade the onerous provisions of the union Scales :

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171 Ibid., qs. 4,573-4,687.

172 Naylor to ibid., q. 252; Templeton to ibid., q. 2,929.

173 J.R. MacDonald, Women in the Printing Trades (1904), pp.46, 172-74; Ross to RC on Labour, Group C, qs. 23,271-72; Templeton to Fair Wages Committee, q. 2,903.

Q. What are the real grounds for your anxiety, apparently, to get rid of the men?
A. The men are so greedy. For instance, a page with an illustration in it - a solid page with a picture - the men charge as solid type; and if the page is a little bigger than an ordinary page, they will charge extra for putting that page in, besides charging it as setting up so many letters. Of course we could not agree to that kind of thing.[174]

More broadly, as Fraser told the Fair Wages Committee, the use of women compositor on a wide scale weakened the union throughout the city, even in those shops where only men were employed:[175]

The Compositors' Union in Edinburgh is not very strong, and we do not consider it much. We make agreements with them, but they are not strong.
Q. You have taken the strength out of it?
A. With the girls, yes.

Wherever women compositors were employed on a wide scale, male printers were unanimous in regarding them as an important cause of union weakness and of unemployment in their own ranks.[176] In this context, it is hardly surprising the typographical unions made opposition to the use of women compositors one of the cornerstones of their trade policy. The unions were normally careful, however, to proclaim their opposition to underpaid female labour rather than to women per se though remarks were occasionally made about the inappropriateness of women doing 'men's work'.[177] Thus the joint conference of Typographical Societies voted in 1886 to admit women as members of the unions if they could earn the men's rate, and the LSC actually went so far as to enrol one female member, who

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174 T. Richards to Fair Wages Committee, q. 4,674.

175 Ibid, qs. 4,686-87.

176 See for example STA AR 1884; submissions of Aylesbury branch of TA to RC on the Depression, Second Report, App.II, p.81; LSC, 'Report of Sub-Committee on Unemployment', LSC Trade Reports 1894.

177 Report of Conference of Typographical Societies, 1886, pp.23-25; Templeton to Fair Wages Committee, q. 2,898.

was employed at William Morris' Kelmscott Press.[178] Women were to be excluded as a consequence of the general logic of craftsmen's attempt to restrict entry to the trade and to maintain their wages and working conditions rather than because of sexual antipathy as such, though the male compositors were quite prepared to sanction sexual discrimination to further their larger aims. As the Secretary of the LSC put it when asked whether he wished to see the sexual division of labour stereotyped:[179]

> As an abstract proposition, I would say the present conditions should be stereotyped rather than that any body of men should be deprived of the right to live.

Although male trade unionists recognised that the cheapness of women's labour stemmed from the fact that they were "easily sweated", they were not, as a rule, quick to regard the organisation of women compositors as a solution. In fact, when a feminist activist approached the STA with a proposal for the organisation of women in Edinburgh, her overture was rejected,[180]

> ...On the grounds that, if the females were organised, their position would be improved as an industry for females, which would result in a great accession to their numbers in Edinburgh.

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178 This is not to say that many male compositors did not also hold sexist attitudes concerning the inappropriateness of women performing 'men's work'. See Naylor to Fair Wages Committee, q. 196; Templeton to ibid., q. 2,906; 'Our Female Rivals', STC Feb. 1886.

179 Naylor to Fair Wages Committee, q. 195.

180 'Statement by Edinburgh Branch on the Female Question', STC Sept. 1904; cf. also the remarks of the General Secretary of the TA to the union's 1908 Delegate Meeting, quoted in Musson, TA, p.121.

In the late 1890s, however, the STA cooperated with Margaret Irwin in an unsuccessful attempt to organise women compositors, and it would be this strategy that would ultimately prove successful in Edinburgh.[181]

Thus wherever their local strength permitted, the unions continued to insist on the exclusion of women, as in London, where the LSC's General Secretary asserted in 1908:[182]

> If it were not for the Union, I venture to think that women would be all over the London trade. Fortunately, the London Union has been strong enough to keep them entirely out; but these London houses, as soon as they get beyond the sphere of influence of the London Union, by moving 20-30 miles outside, at once they set up the conditions that I know would set up in London if they thought they could do so unchecked.

Surveying the printing industry on the eve of the introduction of the linotype, it is difficult to avoid the conclusion that the position of the hand compositor and his framework of craft regulation was increasingly embattled, and in many respects deteriorating, in the face of employers' pressures to cheapen and intensify his labour. We have already alluded to the pitfalls of 19th century wages statistics. Nonetheless, there is a certain amount of evidence that compositors' earnings were falling behind the rate of increase of the labour force as a whole, and of certain skilled trades in particular. Considering the movement of compositors stab rates, Bowley and Wood calculated, using a weighted average, that these rose 21% between 1860 and 1891; Phelps Brown and Browne's index of money wages shows that overall wage rates rose by 43.5%.[183]

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181 See below, pp.321-28.

182 Naylor, to Fair Wages Committee, q. 246.

183 A.L. Bowley and G.H. Wood, 'The Statistics of Wages in the 19th Century , Pt. V, Printers', Journal of the Royal Statistical Society, LXII (1899); Phelps Brown and Browne, Century of Pay, p.358.

It is more difficult to show that compositors were falling behind other skilled trades on this basis: Bowley's index numbers for fitters' and turners' wage rates show a similar increase of 22-23%, while in London the rise in the LSC's stab rate from 33s in 1860 to 38s in 1890 was matched by that of the ASE from 34s to 38s.[184]

In any trade where piecework payment plays a major role, however, time rates do not provide a reliable guide to earnings: a pioneering study of rivetters' earnings on Clydeside before the First World War suggests that in only one year between 1889 and 1913 did these workers in practice earn the district rate.[185] Printing was no exception in this regard: far more than any lag in the rise of stab rates, it was the growth of piece-stab and casuality which depressed wages. In Dublin, for example, a master printer testified in 1908 that piece hands were unable to earn the stab rate;[186] in this respect, the situation in Edinburgh provides an extreme example which illuminates the general trend:[187]

> The position of the piece compositor has for years been one of peculiar hardship. Subject to all the vicissitudes of a fluctuating trade, his precarious and uncertain earnings have been further endangered by the more general adoption of the stab system, the large increase in the number of apprentices, and the introduction of female labour.

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184 A.L. Bowley and G.H. Wood, 'Statistics of Wages - Engineering and Shipbuilding Trades', pts. X-XIV, ibid., 68-69, (1905-6). The figures for printing in the 1886 Wages Census are based on such small samples as to be of little value.

185 S. Price, 'Clyde Rivetters' Earnings, 1889-1913', (unpublished paper, Glasgow University, 1977), cited by Reid, Shipbuilding, pp.51-52; for a more detailed discussion of the difficulties of 19th century wages statistics for piece-working trades, see ibid., pp.50-61.

186 Richards to Fair Wages Committee, q. 4,666.

187 Memorial of Edinburgh Typographical Society 1891, cited in Gray, Labour Aristocracy, p.58.

The LSC likewise recognised that piece-stab was the crucial issue for comparison of earnings with other trades: in relation to the other major printing trade, the machine managers, the union noted in 1890 that they,[188]

> ...are already far better paid as a rule than compositors, owing to the fact that they have no piece scale to contend with.

While compositors in regular employment on daily newspapers, especially in London, ranked among the best paid manual workers in the country, these made up only some 10% of the total, even in London. As for the rest, compositors themselves were convinced that their earnings were falling behind those of other skilled trades, and this argument formed an essential component of their demands for wages increases after 1890. The LSC, for example, provided a two page table of hourly rates in other London trades to substantiate their claim that,[189]

> ...The London compositor...has not kept pace with the times... he has looked on...while other trades have improved their position....

Even as the rise of piece-stab and casuality was undermining compositors' earnings and security of employment, the pressure of rapidly rising demand for printed products on the traditional division of labour in the composing room was leading to an intensification of supervision and of the pace of work equally subversive of the hand compositor's autonomy and craft status. By the late 1880s, 'high-pressure' production had become an insistent theme of rank and file grievances, as elected clickers were replaced by managerial appointees in many offices, and compositors could decry the emergence of[190]

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188 LSC memorial 1890, in Howe, London Compositor, p.317.

189 Ibid., p.319; cf. the Edinburgh memorial 1891, in Gray, Labour Aristocracy, p.58. Alford concurs in this view of the London situation. Letterpress Printing, pp.203, 210-27.

190 F. Willis, The Identity of Interests of Employers and Employed (1889).

> ...The factory system adopted in so many of our large houses. Take one house as an instance. After the bell has been ringing for the space of three minutes a line is drawn on the time book by the time keeper, and those who sign under the line are deducted a quarter of an hour....

An editorial in the Scottish Typographical Circular went so far as to claim, albeit with a certain degree of hyperbole, that[191]

> The thinking age of printing has long since passed away, and with it... much of that refined grace of manner that constituted a compositor's claim to be considered one of the 'aristocracy of the working classes'.

These pressures from employers then were straining compositors' framework of craft regulation to its limits. The general trend was identified by one London writer, again with some degree of overstatement:[192]

> There can be little doubt that we are utterly unable at the present time to regulate in a fair and impartial manner a consistent mode of working in the various houses open to us, or in case of necessity, to tackle, with a reasonable chance of success, any decent sized house that may feel inclined to depart from the London Scale and customs.... If we glance from end to end of our so-called 'Fair' houses, what do we find to be the state of many of them? Is it not a fact that they contain abuses of all kinds? Abuses that are as a rule antagonistic to the interests of the workmen employed therein?

As we have seen, the technical content of printing apprenticeship was declining during the second half of the 19th century. Contemporary observers noted a parallel tendency for the quality of the apprentices themselves to decline a development which may serve as an index of popular perceptions of the declining status and prospects of the compositor:[193]

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191 STC Mar. 1885; cf. also 'Present Day Tendencies', ibid., Feb. 1893.

192 Willis, 'Identity of Interests'; cf. Fleet Street 17.1.1903, p.1.

193 Speaker to Printers' Managers and Overseers Association, quoted in LTJ May 1906, p.5; cf. also 'Is the Printer Deteriorating' (answer: yes), STC Aug. 1886.

> We now seem to get the failures at school, the riff-raff of the streets, the rejects of other trades. I can remember when printing was an occupation to which the lower middle class and upper lower class were glad to put their sons, when the printer ranked as being a grade higher than the joiner, the brick-setter, and the fitter.... We ought to get the pick of the lads bred by our working class and the cream of the day schools. A business like ours...ought to attract the brighter boys of the artisan class, to say the least.

While this argument cannot be proved without some representative information on the changing social background of printing apprentices, the view that its quality was declining is supported by such fragmentary statistical material as is available.[194]

Against this evidence of decline must be set the undoubted successes of the compositors' unions in defending and even pushing back the frontier of control in certain areas, largely as a result of improved organisation from the mid-1880s onwards. The unions were able vastly to increase their membership and to extend their organisation to new districts; equally importantly, they were able to tighten their control over apprenticeship and to keep out female labour in most areas. This reinforcement of the effectiveness of compositors' exclusiveness, itself a response to the deterioration of their earnings and control over the organisation of work, would stand them in good stead in the course of their struggles to gain control of new machinery during the following decade.

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194 I.C. Cannon tried to show that the proportion of middle class apprentices declined over this period, by comparing figures taken from the Stationers' Company records for the first half of the 19th century with data obtained from a sociological survey about the fathers of men employed in the industry in the 1950s. Since Cannon accepts that the Stationers' records overstate the proportion of middle class recruits for the earlier period, while his own figures for the later period were apparently based on oral testimony about quite distant events, his findings have little independent value. Cannon, Skilled Worker, pp.86-88. It is striking, however, how few of the compositors appearing in Crossick's analysis of marriage records in Kentish London in the 1870s were themselves the sons of printers. Crossick, Artisan Elite, p.116. For evidence of children of compositors succeeding their fathers in the trade, see Alford, Letterpress Printing, p.199 for the 1870s, and testimony of G. Eyre (Eyre and Spottiswoode's) to SC on Stationery Contracts, q. 938 on the 1890s.

## Craft Regulation in Question

On the basis of a thorough examination of conflicts between skilled workers and employers in engineering and printing, during the second half of the 19th century it is clear that the frameworks of craft regulation and the position of craftsmen themselves were coming under increasing strain from employers' pressures to cheapen and intensify their labour. Despite the previous history of mechanisation in engineering, the technology in both industries had remained relatively static until the 1890s, and the main threats to craftsmen's position came from changes that could be implemented within the existing division of labour: new methods of supervision and wage payment, systematic overtime and casualisation, and the employment of inferior grades of labour (boys, handymen, and women) figured among the major forces undermining skilled workers' earnings, security, and autonomy. At the same time, wherever possible employers struck at the linchpin of craft regulation in the long term by multiplying the number of apprentices and by eroding the technical content of their training by confining them more and more to subdivided and repetitive processes, often paid at piece rates. It is important to recognise the extent to which these processes were already underway before the onset of a new wave of mechanisation in both industries in the 1890s; it was in large measure the inadequacies of these methods of increasing productivity and decreasing labour costs which drove the employers towards a new phase of innovation, while craftsmen's struggles against the new methods were in many respects an extension of those against the old. In no sense, therefore, can skilled engineers and compositors in 1890 be conceived unproblematically as 'labour aristocrats' in the sense intended by many users of the term, i.e., as enjoying high and regular earnings and retaining unchallenge

control over the organisation of production.[195]

While the challenges faced by skilled workers and their unions in printing and engineering during this period were in many respects similar despite the divergent structures of the two industries, there were important differences, particularly in the development of the division of labour, which influenced in no small measure the possibilities for the defence of craft regulation and for alliances between these skilled trades and other groups of workers. The previous wave of mechanisation had brought into the engineering workshops a large class of semi-skilled labourers who could be promoted onto existing types of machines where production processes were sub-divided and simplified. This possibility, which was unavailable in the composing room, undoubtedly rendered engineers' efforts at restricting apprenticeship more difficult and helps to explain the greater success enjoyed by the printing unions in this regard. The relative stability of typesetting technology meant that compositors' main competition after as well as before 1890 came from men and women not already ensconced within the division of labour; this fact, coupled with the greater homogeneity of the printing industry as compared to engineering, made compositors' lines of demarcation and exclusion less ambiguous and more defensible than those of engineers. As a result, the typographical unions appear to have been able to organise a significantly larger proportion of those able to do compositors' work than could the ASE and the SEMS. At the same time, compositors enjoyed relatively amicable relations not only with other printing trades, but even with

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195 For uses of the concept of the labour aristocracy in this sense, see Hobsbawm, 'Labour Aristocracy' in his Labouring Men and his 'The Labour Aristocracy Reconsidered' (paper delivered to the 7th International Economic History Conference, Edinburgh, 1978); Gray, Labour Aristocracy; Crossick, Artisan Elite. For a parallel argument about most shipyard trades, see Reid, Shipbuilding, especially chs. 2-7.

the various groups of printing labourers whose unionisation they encouraged in the late 1880s,[196] whereas in addition to their endemic conflicts with handymen and labourers, engineers found themselves in constant dispute with other skilled trades, a fact which undermined any long term possibility of cooperation against the employers. These differences in engineers' and printers' relations with other groups of workers and in their ability to defend their framework of craft regulation within the existing division of labour would play an important role in determining each group's relative ability to defend itself against more fundamental assaults on its position during the 1890s.

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[196] See below, pp. 294-97, 302-3.

# PART II

## MECHANISATION AND CRISES OF CRAFT REGULATION, 1890-1914

# Chapter IV

## From War of Position to War of Manoeuvre
## 1890-8

In both printing and engineering, the 1890s marked a period of major upheaval in the division of labour as a result of a new wave of mechanisation and labour-saving investment, leading to a crisis of craft regulation. Skilled workers in both industries found themselves involved in bitter conflicts with their employers as the former sought to gain control of the new techniques and to neutralise their impact on the position of craftsmen within the division of labour. In each case, moreover, the struggle over the consequences of mechanisation developed directly out of the endemic normal conflicts between skilled workers and their employers during the previous phase of the division of labour and to a great extent represented a continuation of those struggles by other means. Despite the similarities in the form of the crises of craft regulation in the two industries, however, their underlying causes were in many respects different, as more strikingly would be their respective outcomes. The crisis in printing was above all a crisis of expansion, whose roots lay in the inability of hand composition to keep pace with the rapid expansion of printing output, especially of daily newspapers, and with the concommitant development of the printing press. In addition to seeking means of cheapening and intensifying hand compositors' labour within the existing division of labour, printing employers were actively engaged from the 1860s onward in experimenting with various forms of composing machines; the new element in the situation after 1890 was the availability of an economically and technically

suitable candidate in the shape of the linotype. In engineering, on the other hand, the roots of the crisis lay above all in the exhaustion of the returns from an extensive development of the existing division of labour and in changes in the market position of certain sectors of the industry, and only secondarily in the greater availability of new automatic and semi-automatic machine tools.

More striking than the differences in the causes of these crises were the differences in their outcomes, both in the short and the long-run. In engineering, conflicts between craftsmen and employers over the reorganisation of the division of labour led to a full-scale national lockout in 1897-8, in which the unions' defeat resulted in the imposition of an employer-devised system of industrial relations and ultimately to a significant deterioration in the craft position of skilled workers. In printing, by contrast, craftsmen were quickly able to win control of the new machines through agreements with the employers, and after the turn of the century, to consolidate their control through a mixture of confrontation and negotiation. These crises and the explanation of their divergent outcomes will occupy us for the balance of this thesis; this chapter treats the emergence and initial phases of conflicts over the reorganisation of the division of labour in each industry between 1890 and the end of the decade, the point at which the different outcomes had begun to crystallise with the signing of collective agreements on composing machines in printing and with the defeat of the ASE in the great lockout. Subsequent chapters will follow the story up to 1914, focusing on the consolidation of craft regulation in printing after 1898, and on its revival in engineering during the same period.

The main events of the period, both in engineering and in printing, have received considerable attention from historians, and our primary purpose, there-

fore, is to examine them in the context of our central explanatory problem - the relationship between craft regulation on the one hand and technical change and the reorganisation of the division of labour on the other, rather than to provide another comprehensive narrative. Nonetheless, it will be necessary at many points to draw attention to issues in the narrative which have been ignored or under-emphasised in the existing historiography. This is especially true as regards two themes which fit uneasily with the proceduralist assumptions derived from industrial relations theory which have informed so much of the historiography: the role of rank and file activity and opposition in shaping relations between union executives and employers; and the problematic relation between the formal negotiation of collective agreements and their implementation on the shop floor. As we will attempt to show, conflicts over the introduction of new technology can best be understood in terms of a triangular relationship between employers, union executives, and the rank and file (with lower levels of union organisation such as district committees playing a shifting role between the union and its members), so that pressure from below often placed significant constraints on the agreements which could be reached through collective bargaining. Similarly, neither in printing nor in engineering did the negotiation of collective agreements, whether the Terms of Settlement or the linotype scales, in itself resolve the questions of control over new technology; instead these agreements provided a new framework within which conflicts between skilled workers and employers would be fought out.[1]

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[1] The main sources in the existing historiography for narrative accounts of this period are, for printing, Musson, TA; Child, Industrial Relations; Gillespie, STA; Howe and Waite, LSC. For engineering, Jefferys, Engineers; Weekes, ASE; Wigham, Power to Manage; Croucher, Local Autonomy; Burgess, Industrial Relations and the detailed narratives of the 1897-8 lockout cited in note 63 below. On the whole, the proceduralist assumptions described above are more characteristic of the historiography of printing than of engineering; Weekes, ASE, and Croucher, Local Autonomy, in particular emphasise the role of pressure from below in overturning agreements reached between the ASE Executive and the EEF, and in subverting the application of the Terms of Settlement after 1898; I have been influenced by their work in formulating my own views.

Engineering: Normal Conflict, Mechanisation and Confrontation

The stability of the pattern of investment and with it of the structure of the division of labour in engineering during the decades after 1850 rested on two related economic conditions: the commanding position of British engineering products in world markets, and the absence of a significant demand in Britain itself for standardised, mass produced engineering goods. Beginning in the 1870s and with accelerating force in the 80s and 90s, the first of these conditions was eroded by the emergence of American and German competition, first in European and Third World markets and ultimately in Britain itself. While the emergence of the sewing machine and developments in armaments had provided some scope for mass production methods in the 1880s, it was only with the bicycle boom that a broad-based demand emerged in Britain for a product with standardised, interchangeable parts; it was this demand which effected the diffusion in Britain of the new automatic and semi-automatic machine tools adapted for mass production which had been developed in America during the preceeding half-century, a process of diffusion which ultimately spread beyond the cycle industry to touch the older sectors as well.[2] While the gradual exhaustion of the productive possibilities of the existing division of labour in engineering, coupled with the impact of the depression, had driven employers during the 70s and 80s to seek means of undermining craft regulation, neither the diverse character of demand nor its

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[2] While the sewing machine was a product similar in character to the bicycle, and could in principle have exerted a similar influence in drawing automatic machine tools into the British engineering industry, Saul has argued that it failed to do so because of the institutional separation of the production of sewing machines from the rest of engineering in Britain. The vast majority of British sewing machines were build by the Singer plant on Clydebank, which also produced its own machine tools, so that the demand for sewing machines exerted no pull on the machine tool industry as that for cycles would do. Saul, 'Mechanical Engineering'.

slow rate of growth had encouraged them to embark on a major new wave of capital-intensive, labour-saving investment. The onset of such a new wave of investment, sparked by the bicycle boom, emerged within the context of intensifying normal conflict between skilled workers and their employers, leading rapidly to a major confrontation over the consequences of technical change for the division of labour.

As we saw in Chapter II, the machine tools involved in the reorganisation of the division of labour in British engineering during the 1830s and 40s did not permit the routinisation of the whole of what had been the work of the all-round craftsman; these innovations still left a considerable margin of operation for more specialised skilled workers, particularly the fitters and turners, a space broadened considerably by the extensive development of the industry after mid-century. From the 1840s, however, American manufacturers operating behind steep tariff walls developed a new generation of lighter automatic and semi-automatic machine tools and precision gauges to cater for a burgeoning demand for mass produced consumer durables - typewriters, small arms, agricultural machines, sewing machines, and so on - for which the American market provided much greater support than did that of Britain.[3] S.B. Saul has described the technical capacities of the most important American innovations which made it possible in principle to routinise a much larger proportion of skilled labour in the industry:[4]

> The turret lathe had a round or hexagonal block which rotated about its axis with a hole in the middle of each side into which tools were inserted and brought successively into contact with the work. In its automatic form...it was ideally suited to the production of many kinds

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[3] Rosenberg, 'Technological Change'; Saul, 'Mechanical Engineering', and 'Engineering'.

[4] Saul, 'American Impact', p.22; for more detail on technology, see Floud, Machine Tool Industry, Ch.2.

> of duplicated small parts, since drilling, boring, turning and facing could all be done on the same machine. Another radical change came through the milling machine in which the ordinary cutting tool of the planer or shaper, for example, was replaced by a rotating disc or drum with teeth cut in the rim. With its continuous motion the machine was technically more perfect than the reciprocating tools which wasted power on the return stroke, it had a broader working edge than the traditional tools, and above all, unlike them could cut to any geometrical shape. Milling machines were used for many operations which had previously been carried out laboriously by hand but one vital development was their adaptation for the cutting instead of the casting of gears. It was most important to obtain accurate gears as the speeds of mechanisms began to increase so markedly and when the automatic machine appeared in 1877 it became possible to produce them cheaply and in quantity. The grinding machine largely displaced the more costly scraping and became indispensible in any shop working to fine limits. There was too the micro-caliper for machinists which played a major part in raising standards of accuracy.

As we noted in Chapter III the impact of new American machine tools on British engineering practice before the 1890s was negligible, despite earlier various efforts to introduct them into Britian. Whitworth and others were able to persuade the British government to build a factory to make guns with interchangeable parts in the 1850s and a distributor of American machine tools was operating in Britain from 1865 onwards. Nonetheless, the first factory completely equipped with American machine tools was a machine gun works set up in 1889; similarly, those British manufacturers marketing light machine tools, among them Greenwood and Batley, experienced little demand for these products in the 70s and 80s.[5] It was the bicycle boom of the mid-1890s which sparked the change. Bicycle production began to develop in the West Midlands from the late 1880s, rising steadily in the face of the general downturn in trade in the early 90s, but really taking off during the home boom which began in 1895. In contrast to most upturns in the trade cycle in Britain between 1850-1914 in which exports

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[5] Saul, 'American Impact', 'Machine-Tool Industry'.

and foreign investment played the leading role, the second half of the 1890s saw a revival led by domestic consumption, centred on house building, bicycles, and brewing, as a result of rising real wages.[6] Bicycle production expanded massively between 1895 and 1897, as can be seen from some of the following indicators: the export of cycles and parts from Britain rose by 33.9% from 1895 to 1896; the number of cycle manufactures in four major centres (London, Nottingham, Coventry, and Birmingham) more than doubled between 1894 and 1897; the number of bicycles dispatched by rail from Coventry rose from 113,000 in 1895 to 216,000 in 1896 before falling to 142,000 in 1898.[7]

This enormous surge of demand for cycles brought in its train a similar demand for the new generation of machine tools required to produce them. Imports of American machine tools consequently mushroomed: total British imports from the US of 'Iron and Steel Manufactures' increased in value by more than sixfold between 1894 and 1898, to some £4 million at 1913 prices; American exports of 'metal working machinery' alone amounted to some £350,000 by 1898.[8] British machine tool firms prospered similarly: Alfred Herbert's sales rose from £5,000 in 1896 to more than £50,000 in 1898; John Lang's from £20,000 to £50,000 during the same period, as did many of the makers of the new tools. Where Herbert had employed 12 men in 1887, he employed 500 in 1897, and between 1890 and 1897, the total sales of nine major British machine tool makers nearly tripled.[9]

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6 J. Blackman and E.M. Sigsworth, 'The Home Boom of the 1890s', Yorkshire Bulletin of Economic and Social Research 17(1) (1965).

7 Harrison, 'British Cycle Industry'; Blackman and Sigsworth, 'Home Boom', pp.86-88.

8 Floud, 'Engineering Competition', p.61; Saul, 'American Impact', p.26.

9 Saul, 'Machine-Tool Industry', pp.30-35; ibid., 'American Impact'.

The same decade saw a major increase in the competitiveness of American (and to a lesser extent German) engineering products in world markets, including the British home market, as the total export figures quoted above demonstrate. Before 1890, British engineering manufacturers had experienced competition in European and Third World markets from the Americans in products like agricultural machinery and from the Germans in locomotives and steam engines, but after 1890 a whole range of American mass produced consumer goods - typewriters, sewing machines, cycles - and the lighter machine tools required to produce them swept into world markets, as their prices fell with the maturation of the rival industries behind their tariff barriers.[10]

While the new machine tools were best suited to mass production, they were flexible enough to be used on less standardised work as well, since in some areas they extended the technical capacity of the engineering workshop in absolute terms: thus the milling machine enabled gears to be cut rather than cast, and the new lathes allowed turning work to be done to closer tolerances. Thus the intensification of foreign competition, together with the example of the cycle makers, the falling prices of the new machine tools and the improved network of distribution in Britain, encouraged manufacturers in the older as well as the newer sectors of the industry to experiment with the new techniques. In most cases, this amounted to the piecemeal introduction of new machine tools, perhaps occasioned by the normal depreciation of old plant, rather than wholesale scrapping of existing machinery in the interests of a transformation of the division of labour, but the process went furthest in those older sectors which most closely approximated to mass production, notably textile engineering.

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[10] Saul, 'American Impact', 'Mechanical Engineering', 'Engineering', 'Machine-Tool Industry'; Floud, 'Engineering Competition', Machine Tool Industry; McLean, 'Engineering Competition'.

Many Lancashire textile machinery firms purchased milling machines, for example, and one leading enterprise, Brooks and Doxey, owned 160 by the late 90s; similarly, locomotive makers and marine engineers began to install light British and American machine tools when re-equipping their shops during the same period. In the machine tool sector itself, when expanding demand induced Lang's, specialists in high-class lathe-making, to equip a new shop in 1896, they added 13 American machines, including five automatics to the conventional run of British machines.[11]

The result of this renewed wave of mechanisation, though it affected above all newer sectors like cycle making and certain types of armament production while having a more marginal impact on the core of the older sectors themselves, appears to have been significant productivity gains in the industry as a whole. Phelps Brown and Browne's index of throughput in engineering shows productivity based on weight of metal processed increasing by nearly one-third between 1890 and 1899, which may provide some rough indication of the extent of change, though, as we have noted, there are difficulties in using weight alone as an index of productivity in so variegated an industry as engineering, particularly during a period of innovation when the complexity of machinery is increasing.[12] In a similar vein, one union source claimed that the time needed to produce a component of an engine bearing in "a successful engineering organisation" dropped from 98.2 minutes in 1890 to 28 in 1900, a greater reduction than in any other decade between 1880 and 1930.[13]

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[11] Saul, 'Machine-Tool Industry', p.29; Blackman and Sigsworth, 'Home Boom', pp.85-86.

[12] Phelps Brown and Browne, Century of Pay, p.176.

[13] Amalgamated Engineering Union, MJ Feb. 1932, cited by Burgess, Industrial Relations, p.27.

This new wave of mechanisation inaugurated during the mid-1890s coincided with a period of intensifying normal conflict between skilled engineers and their employers. As we saw in the previous chapter, the impact of the great depression and of declining returns from extensive growth pushed employers to seek means of cheapening and intensifying skilled labour within the existing division of labour during the 1870s and particularly the 80s. With the revival of trade between 1889 and 1892, skilled engineers, like their counterparts in printing (albeit with less success), launched a major counter-offensive involving both local militancy and organisational reform. The union counter-offensive aimed to regain ground lost during the depression on a broad front of issues ranging from wages to the regulation of apprenticeship, machine manning, piecework and overtime, and ultimately looking forward to the conquest of the eight hour day.

The Maxim-Nordenfeldt strike against cuts in piece rates and the employment of handymen on machines was one example of this renewed militancy (and its pitfalls in practice), but the movement was concentrated above all on the marine districts, whose connection with the sharp cyclical fluctuations of the ship-building industry encouraged workers to take the fullest possible advantage of the leverage afforded by a boom. Thus, for example, ASE District Committees in the Bristol Channel in the early 90s won agreements from their employers to respect union restrictions on overtime and the number of apprentices.[14] Similarly, ASE members in the Naval shipyards at Barrow-in-Furness began successfully to refuse to work with non-unionists.[15] It is likewise from the early 90s that employers on the Clyde and in other marine centres began to

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[14] See above, pp.71, 115.

[15] ASE QR June 1894; de Rousiers, Trade-unionisme, p.272.

complain of the operation of informal piecework ceilings.[16]

The real storm centre of this movement was, however, the Northeast Coast, which had become the best organised district in the ASE by the early 90s. In 1889, ASE District Committees in the region formed a single coordinating committee for the Tyne, Wear, Tees, and Hartlepool from which they launched a major offensive for the recovery of ground lost on wages and craft regulation in the preceding slump.[17] By April 1890, the Northeast Coast committee had won not only an advance of wages but had also obtained a reduction of one hour in the working week, and later that year it embarked on a campaign for the limitation of overtime whose partial success has already been noted.[18] It was during this period that the ASE nationally was stepping up its efforts to swallow the smaller sectional societies and to assert its claims to disputed classes of work, resulting in, for example, strikebreaking activities against the patternmakers in Belfast in 1891-2. On the Northeast Coast, demarcation disputes with the Plumbers erupted into a series of crippling strikes in 1891 and 1892 which did much to mobilise employers' animosity towards the ASE.[19]

At the same time, a reform movement was underway in the ASE, inspired both by internal developments in engineering and new currents in the wider labour movement. The organisational weakness of the ASE, demonstrated by the failure of the Maxim-Nordenfeldt strike despite close Executive involvement and by the

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16 EEF 'Examples of ASE Interference and Restrictions', Nov. 1897, Webb Coll. EB LIX, fs. 10-14.

17 ASE MR Feb. 1889.

18 ASE MR Apr. 1890; see above, pp. 118-19.

19 See above, pp. 126-27.

general disarray of craft regulation in the industry, prompted an interest in reconstructing the government and policies of the union among members concerned about its capacity for industrial action. The revival of socialism and the enthusiasm for the 'New Unionism', epitomised by the London dock strike of 1889, led young engineers, particularly those close to the centre of socialist agitation in London, to become dissatisfied with official union policies of moderation in demands and in industrial action, abstention from outside political activity, and hostility to broader forms of union recruitment and organisation. These activists also expressed the view, by no means confined to socialist circles, that a reorganisation of the Executive and the structure of the society was essential to put more militant trade policies into practice.

This growing reformist impulse found its chief voice in the candidacy of Tom Mann for General Secretary of the ASE following the death of Robert Austin in 1891. Apprenticed as an engineer, Mann joined the Social Democratic Federation in the early 1880s, moving later into the Independent Labour Party, but his rise to political prominence dated from his central role (along with Ben Tillet and John Burns) in organising the Dockers' Union in 1889, whose president he remained at the time of his ASE candidacy. Mann was also closely identified with the movement for the legal eight hour day (to be achieved by legislative as well as by voluntary, i.e., industrial, means), having published a well-known pamphlet '<u>What a Compulsory Eight Hour Day Means to the Workers</u>' in 1886.[20]

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[20] Reprinted, 1972.

Mann did not, however, campaign as a socialist or directly challenge the craft basis of the ASE. Instead he aimed his appeal at all those desiring change in the union. In his platform, Mann argued that the membership of the ASE should be extended to embrace:[21]

> Every workman engaged in connection with the engineering trades, ... who is called upon to exhibit mechanical skill in the performance of his labour. This would include men on drilling machines, toolmakers, diesinkers, and electrical engineers.

Mann did not explicitly attempt to modify commitment of the ASE to the protection of the skilled engineer's craft position, but rather proposed a reorganisation of the government of the society to make the Executive Council a more effective instrument of militant industrial action. The EC, which was at that time a part-time body composed exclusively of London representatives, should become a full-time elected one assisted by paid district organisers, the better to press for the "abolition of systematic overtime and the reduction of normal working hours", as well as to fight wage reductions.[22]

Contrary to what is often supposed, the bulk of Mann's proposals, which sought to bridge the gap between the defence of craft regulation and the new unionism were also supported, at least in principle, by the 'old unionist' leadership of the union. In 1891, for example, the old Executive Council advised the membership to support the following proposals to be considered at the Delegate Meeting the following year:[23]

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[21] Election Address, 22.1.1892, Webb Coll. EB XLVIII, f. 17.

[22] Ibid.

[23] ASE MR June 1891, pp.31-32. I am grateful to Robert Baldwin of Manchester University for calling this reference to my attention. The conventional view can be found in Jefferys, Engineers, p.136; Burgess, Industrial Relations, p.51.

1) ...The extension of our preamble to the utmost limit, enabling us to include within our organisation all those engaged in our trade; the object to be attained being to prevent our employers using with such disastrous consequences to ourselves the partially-skilled men, who through the introduction of labour-saving machinery have become an integral part of our trade, when attempting to better the conditions of our members or resisting innovations, every interest being guarded and protected by a system of grades or classes.
2) The unprecedented increase in the number of members, branches, and district committees, during the past three years, the certain growth of our Institution in the future, has rendered it absolutely essential to devise methods, other than those at present existing, whereby the continually increasing business devolving upon the Local Executive Council can be speedily and efficiently dispatched.

Despite his economical campaign and a record turnout of over 50 per cent, Mann was unable to overcome the forces of inertia within the ASE. He ran well in certain areas - especially London, Scotland, and the West Riding of Yorkshire but John Anderson, the Assistant Secretary and a clear representative of the old guard, defeated him by 1,000 votes. While there is no substantial information about the social composition and political views of Mann's supporters, Weekes' close analysis of the campaign suggests that there was little support for a major opening of the society to the less skilled or for socialist ideas as such; the strength of Mann's campaign thus represented sentiment for a more militant industrial orientation rather than for any fundamental shift in the ASE's goals.[24]

As a result of the movement for reform within the union, the 1892 Delegate Meeting passed a number of changes in the ASE rulebook. Though influenced by the ferment created by Mann's candidacy, these rule changes fell considerably short of what might have been attempted had Mann been victorious. Most significantly, the Executive Council became a full-time body elected by the membership

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[24] Weekes, ASE, ch.2.

as a whole, with a regional organisation composed of six Organising District Delegates (ODDs) to assist it. At the same time, however, the autonomy of the District Committees was reaffirmed and even strengthened, as these were empowered to convene mass meetings on trade questions and local negotiation of piece price lists was authorised. The delegates hotly debated the extension of ASE membership to other classes of workers in the industry, with London and Liverpool leading the fight for the broadest possible admissions policy and Scotland and Manchester acting as centres of conservative resistance. In the end, such groups as roll-turners, die-sinkers, electrical engineers, and some machinemen were made eligible for full ASE membership (though whitesmiths, bicycle-makers, engravers, sheet-iron workers, and agricultural fitters were rejected) and special sections were created for those skilled workers over thirty who were for various reasons ineligible for full membership. But an apprenticeship and the ability to earn the standard rate remained the basic criterion for full ASE membership, and members in the special sections both received lower benefits and were excluded from any active participation in ASE affairs.[25]

The 1892 reforms had considerable impact on the organisation of the ASE, but they should not be understood as a major radicalisation of the union or a serious attempt to transform it into an industrial union. The strengthened Executive Council was better suited to direct coordinated industrial action, but policy formation remained primarily in the hands of the District Committees who retained the right to grant out of work benefits and therefore, to strike without Executive approval. Since the DCs, which were dominated by skilled

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[25] MS. Report of ASE Delegate Meeting, Leeds, June 1892, Webb Coll. EA XVI, f. 5, pp.188-89; ASE Rulebook 1892, Rules I, XIX, XXII, and XXIII; Jefferys, Engineers, p.137; Weekes, ASE, pp.35-36.

workers with a strong craft orientation, were responsible for recruiting the new grades of workers, it is hardly surprising that the new sections remained largely a dead letter and the ASE overwhelmingly a union of fitters and turners.[26]

The main area where the reformers had some substantial effect on national union policy was on the question of the eight hour day, which in its voluntary (as opposed to legislative) form was simply an extension of the movement of the preceding decades for the shortening of the working week. Although the leader of the nine hours movement, John Burnett, had become General Secretary of the ASE in 1874 and had founded a Nine Hours Maintenance League, few subsequent initiatives to extend the principle emanated from the Executive Council. The experience of unemployment during the 80s gave rise to renewed interest in a shorter working week as a means of tightening craft regulation and soaking up surpluses in the labour market; after conducting several ballots among the membership in the late 80s and early 90s, the ASE EC chose the election of a Liberal government in 1892 as the occasion to press for the eight hour day in all government establishments, a goal achieved in 1893. As in 1871, however, the impetus behind the movement for a shorter working week came from the districts, newly reinforced by the professional ODDs. Amidst a host of local campaigns against non-unionists, labourers doing skilled men's work, the extension of piecework, and wage reductions, the downturn of trade in 1893-4 saw a turn of attention towards the eight hour day as a response to unemployment surpassing 10% among ASE members. By 1894, firms in London, Sunderland, Manchester, Birmingham, Woolwich, Sheffield, Plymouth, and Newcastle had conceded the eight

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[26] Weekes, ASE, pp.41-53; Burgess, Industrial Relations, p.52.

hour day, and "the ASE appeared to be within sight of a universal 48 hour week."[27] But with the deepening of the depression in 1895, the eight hour movement temporarily ground to a halt.

Unsurprisingly, the counter-offensive launched by skilled engineers after 1889 elicited a parallel response from employers, especially in the marine districts where union pressure was itself strongest. Earlier efforts to create a national federation of engineering employers launched by Armstrong after the nine hours strikes of 1871 had foundered on the divisions between marine and inland producers, although the Sunderland apprenticeship strike of 1883-5 eventually led the Northeast Coast firms to affiliate. But while the ITEA had members in some 17 engineering districts by the mid-90s, it remained a loose confederation of local employers' associations without the power to undertake action on a national scale.[28]

It was the resurgence of craft militancy from the late 80s onwards which provided the impetus for the creation of a centralised national employers' federation in 1896. Coordination among the local employers' associations on the three rivers of the Northeast Coast had developed out of the Sunderland apprenticeship dispute in the early 80s, and by the 90s employers throughout the region were operating a unified system of blacklists directed against union activists known as the 'character note' system, whose abolition figured

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27 Weekes, ASE, ch.3, especially pp.75-78; ODD Reports in ASE QRs, 1893-4 passim.

28 Wigham, Power to Manage, ch.1; see also above, pp.30-31. For ASE fears in the 80s that the ITEA was launching a national campaign to level downwards regional wage differentials, see ASE AR 1885, p.xi.

prominently among the demands of strikers in 1890-1.[29] In the course of the disputes with the ASE over restriction of overtime and demarcation between 1890 and 1892, the Northeast Coast employers had developed the tactic of turning disputes at a single firm into regional confrontations by locking out ASE members in stages of 25% per week, and were establishing links with engineering employers in other districts, mainly on the Clyde.[30] The extent of the North-eastern employers' alarm at developments on the trade union front emerges most clearly from a memorandum written by Col. Dyer, Managing Director of Armstrong's and later President of the EEF, for Sidney Webb in 1894, explaining the firm's decision to abandon plans for the construction of a plant for steel plate making which it believed would in principle be economical:[31]

> At one time we intended to lay down this plant; the drawings were ready and all arrangements made, but owing to the rapid succession of labour troubles in this district during the last few years, we have finally decided not to increase our works in any way or expend any more capital in developing them; indeed, the tendency is all the other way and it is not improbable that we will gradually decrease them. Each strike we have has diverted some of our customers to France and Germany, and once they get them they never let them entirely out of their hands again. Our wage book shows the result all too plainly: after each strike there has been a reduction in the amount paid in wages. A small proportion is recovered, but in each case there has remained a permanent decrease which has resulted in the fact that we are now paying less than half the wages we were paying five years ago.

By 1895, the Northeast Coast branch of the ITEA had gone so far as to set up an elaborate mutual strike insurance scheme, with machinery modelled on that of the Durham coal owners whereby members could elect to pay in so much per man employed per week, and would receive a similar amount from the general fund in case of a shutdown.[32]

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[29] For testimony on the 'character note' system, see the evidence given to the RC on Labour, Group A, by W. Mosses (UPA), qs. 22,387-98, 22,555-78; J. Whittaker (ASE), qs. 22,682, 23055-62; and A. Noble (Armstrong's), qs. 25,256-64; ASE MR Feb. 1889.

[30] Wigham, Power to Manage, pp.19-21; and above, pp.

[31] Webb Coll. EA XXI, f. 18. My emphasis.

[32] Details of this scheme are given by B.C. Browne (Hawthorn, Leslie, and Co.) in a letter to A. Smith, Secretary of the EEF, 15.5.12. EEF Archives, I(4)1.

Meanwhile, engineering and shipbuilding employers on the Clyde had launched a new attempt at a joint national employers' federation in 1889, reportedly under the influence of the Shipping Federation,[33] but failed to attract a significant number of non-Scottish firms. Thus the engineering firms in this organisation had decided to withdraw in 1890, but it was only as a result of a request from the Northeastern employers for assistance in the 1892 demarcation dispute that a separate North West Engineering Trade Employers' Association was formed.[34] A standing committee of Northeast Coast employers was established for collective bargaining purposes under Armstrong's auspices, but the crucial step towards a national federation was taken the following year. With the revival of trade late in 1895, engineers sought to regain the wage reductions imposed during the preceding slump, and ASE District Committees launched advance movements in a number of areas, including Belfast and the Clyde. The employers in these two districts agreed to support each other in case of a dispute; when a strike broke out in Belfast, the Clyde employers locked out 25% of ASE members in their shops despite the willingness of the local DC to accept a lower rise than their counterparts in Belfast. Faced with this display of employer militancy, the ASE Executive hastened to arrange a settlement, bringing the Belfast strikers back to work against their will by suspending strike benefits. In a move that presaged the outcome of later clashes between the Executive and the districts within the union, however, the 1896 ASE Delegate Meeting censured the EC's conduct of the dispute, passing a new rule prohibiting either the Executive or the District Committees from closing a dispute without the consent of two-thirds of the strikers; the DM's judgement was later

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[33] Clegg, Fox, and Thompson, Trade Unions, p.82.

[34] Wigham, Power to Manage, pp.20-21.

upheld by the union's Final Appeals Court (FAC).[35]

The success of coordinated action in the Clyde-Belfast dispute provided the spark for the formation of the EEF, which brough together the employers' associations of the major marine centres of the Northeast, Clyde, Belfast and Barrow. The intensified normal conflicts of the early 90s had prepared the ground for this breakthrough in employer organisation, but the sense that the introduction of new machinery might provide an opportunity for a significant transformation of the division of labour likewise stiffened the employers' resolve: it is by no means accidental that Armstrong's, the moving force in the new organisation, should have found itself as both a marine and arms producer in the forefront of both normal conflict with the unions and mechanisation. The new organisation was governed by an elected Executive Board with regional representatives; firms' contributions and voting power were proportional to their total wage bill, and Federation decisions were binding on local associations, which were prohibited from taking independent action on matters of 'general importance' without consulting the Executive. As a practical weapon against the unions, the Northeast Coast 'character note' system was to be generalised throughout the Federation by the 'enquiry form' which prohibited members from employing strikers from other firms. The interconnection between the emerging crisis of mechanisation and the intensification of normal conflict during the preceding decade emerges clearly from the detailed objectives set out

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35 Board of Trade,'Report on Strikes and Lockouts in 1895', (C. 8231) P.P. 1896, LXXX, pt. I, pp.32-36; Wigham, Power to Manage, pp.22-24; Weekes, ASE, p.83; Jefferys, Engineers, pp.140-41. For the respective powers of the EC, DM, and FAC in the ASE constitution, see above, pp.78-79.

in the Federation's rules:[36]

> To secure mutual support and cooperation in dealing with demands made, and actions taken, by workmen or combinations thereof, on all matters or questions affecting the general and common interests of the said trades, including therein such questions as interference with Foremen, unreasonable demands for wages, employment of apprentices, hours of labour, overtime, limitation of work, piecework, demarcation of work, machine work, and the employment of men and boys on machines.

With the accelerated diffusion of new machine tools after 1896, the problem of machine manning moved rapidly to the centre of the mounting tensions between the ASE and the newly established EEF. In August 1896, for example, 500 fitters and turners at Earle's Shipbuilding and Engineering Co., Hull, struck against the employment of a handyman member of the UMWA on a milling machine. After a four month strike, the dispute was resolved through the intervention of the Board of Trade; the handyman was to remain, but future machines would be worked by craftsmen. In the eyes of the ASE, this decision,[37]

> ...forced recognition of the principle that machines which supersede hand skilled labour should be manipulated by skilled and fully-paid men.

The society's newly elected General Secretary, George Barnes, put the dispute into broader perspective:[38]

> The same question will doubtless have to be fought out elsewhere, and it is of the utmost importance that we shall be clearheaded in regard of it. It should never be lost sight of that the proportion of machine to hand work is an increasing one, and that to lose control of the machine is to a large extent to lose control of the trade.

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[36] EEF, 'Conditions of Federation' (1896), reprinted in Wigham, Power to Manage, app. B, pp.280-81.

[37] ASE MJ & R Jan. 1897, p.40.

[38] ASE AR 1896. Detailed information on the Earle's strike can be found in the EEF Archives, Series M(8)1, and Executive Minutes, 26.11.1896; see also Jefferys, Engineers, p.143; Weekes ASE, p.84; Burgess, Industrial Relations, p.60.

A similar dispute at Dunsmuir and Jackson's in Glasgow the following month provoked a more vigorous response from the employers: the EEF threatened to lock out 25% of ASE members nationally each week until the ASE Executive compelled the strikers to return to work, a demand with which the latter immediately sought to comply. In the event, the non-unionist at issue left the firm, but the dispute highlighted the stakes involved and pointed towards the likelihood of an eventual confrontation.[39]

During the early months of 1897, disputes over machine manning multiplied, and with them the threat of a national lockout. ASE members at the Sunderland Forge and Engineering Company were unable to prevent the employment of handymen on horizontal boring machines at wages 5-6s below the district rate, and similar disputes appeared at Elswick, Barrow, Glasgow, and Belfast among other places.[40] Having resolved in November 1896 to coordinate resistance to union claims on machine manning, the EEF was determined to make its stand on the principle that:[41]

> The machines are the property of the employers, and they are solely responsible for the work turned out by them; they therefore will continue to exercise the discretion they have hitherto possessed by appointing the men they consider suitable to work them.

Normal conflicts as well as the machine question continued to fuel the movement towards a full scale confrontation between the EEF and the ASE. Disputes had

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39 EEF Executive Minutes, 24.8.1896; Jefferys, Engineers, p.142; Weekes, ASE, p.83; Wigham, Power to Manage, pp.32-33; Burgess, Industrial Relations, p.60.

40 Board of Trade Labour Department, Report on Strikes and Lockouts in 1897, (C. 9012), P.P. 1898, LXXXVII, pp.lii-liv; ASE MJ & R, Jan-Apr. 1897; EEF Executive Minutes 26.2.1897; Jefferys, Engineers, p.143; Weekes, ASE, p.84.

41 Letter from EEF to ASE, Dec. 1896, quoted in Weekes, ASE, p.84; see also EEF Executive Minutes 26.11.96 and Wigham, Power to Manage, p.33 for the resolution on the machine question.

arisen earlier in the year over 'interference' by ASE shop stewards with foremen at Barrow and on the Clyde; a series of disputes over wages for warship trial trips on the Northeast Coast and restrictions on overtime at Sunderland, Barrow, Hartlepool and the Clyde escalated tensions between the ASE and the employers.[42]

In March 1897, therefore, the EEF again threatened a national lockout over the whole panoply of issues in dispute with the machine question in the forefront, and a confrontation was only averted by the suspension of the disputes pending a general conference between the Federation and the ASE Executive the following month.[43] The purely local disputes about trial trip wages and overtime were quickly resolved by joint negotiations, but the machine question proved much less tractable. In 1896 the EEF had been prepared to concede control over certain machines to the ASE - basically sliding and screw-cutting lathes and large boring machines - in exchange for a free hand on the rest.[44] But by the time of the machine conference in April 1897, the Federation's leaders, conscious of their growing power and infuriated by the recurrent challenges to managerial prerogatives, had become determined to secure complete freedom to man all machines as they pleased.

Underlying the conflict between the employers and the ASE over machine manning were both a practical clash of interests and strikingly different conceptions of political economy and the respective rights of skilled labour and capital

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42 Board of Trade, Report on Strikes...1897; EEF, 'Examples of ASE Interference and Restrictions', Webb Coll. EB, LIX, fs. 10-14, 17; ASE MJ & R Jan-Apr. 1897

43 EEF Executive Minutes 12.3.1897; Wigham, Power to Manage, pp.34-35.

44 EEF Executive Minutes 13.8.1896.

in relation to the costs and benefits of technical change. These divergences appear clearly in the debates at the April conference. As we have seen, both skilled workers and employers were agreed that certain machines could be worked as well by handymen as by craftsmen.[45] The employers were determined, however, to reserve to themselves the right to decide which machines should be worked by craftsmen and which by handymen, using pure market criteria, since in their view, "...the machines are the property of the employers and they are solely responsible for the work turned out on them."[46] The introduction of labour-saving machinery and the concommitant reduction of labour costs was, moreover, essential to repel foreign competition:[47]

> If we do not produce a cheap article, the foreigner will. We are rapidly being put out of the markets of the world.... Unless we choose to keep a level with the competitors round about us, we shall go to the wall.

The ASE, for its part, asserted a counter-claim based on rights earned through the acquisition of skill through apprenticeship against those of the employers based on property:[48]

> If the employers say they have a property in the machines, we might just as well say we have a property in our skill and our labour. We each of us have an interest in the trade. Each of us might say we have a property in something and we would get no forwarder.... Our main contention is that those who are displaced by the introduction of the repetition system should at least have the first benefit from it, having served what we term a legitimate apprenticeship to the trade.

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45 See the quotations from the 1897 Machine Conference cited above, pp.46-47.

46 Letter from EEF to ASE quoted by G.N. Barnes, Machine Conference, 1897, p.53. The logic of the employers' position was set out more fully at a conference some dozen years later:

> I have never liked this question of safe-guarding a mechanic in his work, because, in fact, he does the work better and cheaper than a semi-skilled man does.... It is not because a mechanic has any additional right to do the work, but because he does it better. That is where his strength is. 'Verbatim Transcript of Central Conference, 31.5.1911', EEF Archives M(4)1.

47 Dyer to ibid., p.36; cf. also ibid., pp.28, 49-50.

48 Statements by Barnes and Crompton to Machine Conference 1897, pp.53, 13.

Accordingly, the ASE reiterated its claim for "the right to work any machine made by our trade and used by our trade". Conscious of its exposed position, the union was prepared to treat the machine question as essentially a problem of wages: the union therefore proposed that local joint boards of workers and employers be established with Board of Trade arbitration to decide which machines should be worked at the skilled men's rate.[49] These proposals would most likely have proved unworkable in practice, since the class of work rather than the type of machine was the key determinant of skill requirements. As one employer told union representatives at a subsequent conference:[50]

> When you come to try and rate the machines, I think you will be up against this difficulty that exactly the same machine is used for totally different purposes. Take a machine in the textile trade which is practically automatic and the man has nothing to do but feed it, that identical machine may be used by general engineers for things that there is no repetition about.

But in any case, the employers had become committed to an unyielding defence of managerial prerogatives, and were no longer disposed to consider compromise solutions, and there are likewise indications that the ASE rank and file would have rejected any retreat from the principles of craft regulation.[51] The conference therefore broke up without reaching any agreement on the machine question, leaving the threat of a lockout still outstanding.

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49 Machine Conference 1897, pp.54 ff.

50 B.C. Browne, in 'Verbatim Report of a Conference between the EEF and Engineering Unions other than the ASE, 26.2.1914', EEF Archives A(4)11. For a confirmation of this point by union representatives, see the testimony of J. Ratcliffe (ASE ODD, Northeast) to Machine Conference, 1897, pp.20-21; and an ASE turner at the Rowan locomotive works in Glasgow to the TUC JC, Premium Bonus, p.28.

51 For fears that the ASE rank and file would reject any scheme for the rating of machines that involved the levelling down of conditions between districts, see the remarks of F. Rose (ASE ODD mid-Lancashire) to Machine Conference 1897, p.48.

In the event, however, it was not the machine question itself which triggered off the impending national lockout, but rather the resumption of the movement for the eight hour day, this time outside the Federation's sphere of influence in London. In April, a joint committee of London shipbuilding and engineering trades, including the Boilermakers and the SEMS among others alongside the ASE, issued a manifesto to employers demanding the establishment of the eight hour day in all London firms. In the tight labour market of the boom, the movement appeared headed for success: 3,000 ASE members in the city were already working eight hours, and by July 65 of 95 London employers surveyed by the ASE had conceded the demand.[52] Overtime was banned pending concessions in May, and the joint committee announced its intentions to strike all hold-out firms from the beginning of July. The stakes were raised still further by the ASE Delegate Meeting at Carlisle in June, which disavowed the compromise offered to the employers on the machine question and proposed to fight for skilled men's rights to work the new machines rather than simply ensure that whoever worked them be paid the standard rate.[53] Meanwhile, the EEF had been energetically seeking to win over the inland firms associated with ITEA: with the intensification of conflict over mechanisation and craft regulation (as well as the takeover of a leading Manchester machine tool firm, Whitworth's, by Armstrong's), Manchester and Bolton had been drawn into the Federation earlier in the year. Faced with the threat of the eight hours movement, the loosely organised London employers applied for membership in the EEF, and the Federation responded by threatening a national lockout if the London strike notices were not withdrawn. The ASE, backed by several smaller unions, refused, and the

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[52] Ibid., June 1897.

[53] ASE MJ & R July 1897, pp.44-45.

lockout began in early July.[54]

While the buoyancy of trade, the determination of its members, and the unprecedented level of ASE membership and resources (which had reached 87,000 and £254,000 respectively by the end of 1896),[55] all appeared favourable to the union, its underlying position was nonetheless weak. Despite its numbers, the ASE had only succeeded in organising half of the fitters and turners in the industry, not to mention the army of handymen, labourers, and machinists, capable of working the new machine tools. At the same time, its history of conflict with other unions made it impossible to count on their support in the event of a showdown. The Patternmakers, the Plumbers, and the various blacksmiths societies had all along refused to be drawn into the joint committee, while the Boilermakers' Executive, preferrring to work for the eight hour day through the Federation of Engineering and Shipbuilding Trades which ASE had refused to join, withdrew from the London movement over the protests of its local members.[56] For the most part, such labourers as were organised were equally unsympathetic to the ASE. The ASE had alienated the Gasworkers by seeking to have their members removed from new machines,[57] while the NAUL, which had instructed its

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54 Wigham, Power to Manage, pp.38-43; Weekes, ASE, pp190-92; ASE, Lock-out.

55 Jefferys, Engineers, p.292.

56 ASE, Lockout, pp.4, 20-27; Cummings, Boilermakers, p.104; Weekes, ASE, pp.92-93; Reid, Shipbuilding, pp.94-95, 102-3, 152-53. The principal unions which did support the ASE were the closely related SEMS and the UMWA.

57 ASE MJ & R June 1897.

members to remain at work during ASE-led strikes on the Tyne in the early 90s adopted a similar course in 1897:[58]

> As neither our members nor the union have been consulted in any way on the question of the eight hour day in the engineering trade, and seeing that the engineers refused to allow the labourers to act with them in the last advance, and seeing that our members are chiefly employed in districts outside London, and will therefore not receive any benefit whatever the ultimate settlement is, the Executive Council advises our members to remain at work.

The employers, on the other hand, had achieved an unprecedented degree of collective organisation and had been preparing for a national lockout since 1896. Plans had been drawn up for a strike levy on its members, for the establishment of a Foremen's Mutual Benefit Society to win supervisors away from the ASE, and for a boycott of all engineering firms not supporting the lockout.[59] The eight hours demand, moreover, proved an ideal catalyst for the unification of the diverse sections of the industry. To employers already infuriated by the multiplication of local disputes and by ASE demands on machine manning, and alarmed at what they believed to be an ascendency of 'New Unionism' in the ASE with the election of George Barnes, ILP member and protege of Tom Mann, as General Secretary in 1896, the renewal of the eight hours movement was the final straw. A substantial reduction in working hours would at a single stroke reduce productivity, raise costs, and undermine the competitive position of

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[58] Quoted in N. Todd, 'Trade Unions and the Engineering Industry Dispute in Barrow-in-Furness, 1897-8', International Review of Social History, 22(5) (1975), pp.38-39. The main exception to this pattern among unions organising less skilled workers was the UMWA, which supported the ASE despite demarcation disputes earlier in the year. See above, p.191. As we have seen, however, the UMWA was already in the process of transforming itself into a more exclusive union modelled on the ASE, with which it cooperated closely in negotiations with the EEF to revise the Terms of Settlement in 1901, 1907, and 1912; the two unions, together with the SEMS, amalgamated in 1920 to form the Amalgamated Engineering Union (AEU).

[59] EEF Executive Minutes 24.4.1896, 26.11.1896, 21.3.1897.

firms from all sections of the industry, regardless of the opportunities for mechanisation in their sector, and so quickly rallied the bulk of engineering employers behind the EEF's banner.[60]

Ideologically and politically, the ASE was likewise on weak ground. Although the ASE Executive attempted to deflect the issue from the machine question to that of shorter hours, the employers were able to present the lockout as a struggle over managerial prerogatives and resistance to technical change. At the same time, the ASE's habits of independent action as well as its craft exclusiveness had alienated significant sections of the labour movement, and limited help was therefore forthcoming from that quarter, despite the official commitment of the TUC to the eight hour day. The EEF's success in representing the union in the press as an enemy of progress challenging property rights under socialist inspiration undermined any possibility of the support from middle class public opinion which had been instrumental in workers' victories in the 1871 nine hours strike and the London dock strike.[61] The engineering lockout was, moreover, an integral component of a national legal and industrial offensive by employers seeking to roll back the gains realised by the new unionism and the craft unions during the boom years after 1889; this general counter-offensive culminating in Taff Vale provided an exceptionally unfavourable climate for any

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60 For a selection of employers' views, see the letter and articles reprinted in ASE, Lockout; The Engineers' Strike: A Series of Articles Reprinted from 'Engineering' (1898); the articles already cited by Col. Dyer and B. Taylor in Cassier's Magazine, Nov. 1897; and B.C. Browne, 'The Engineering Dispute' National Review Jan. 1898, reprinted in his Selected Papers, (Cambridge, 1918).

61 On public opinion during the lockout, see ASE Lockout, and R.O. Clarke, 'The Dispute in the British Engineering Industry, 1897-8: An Evaluation', Economica, (May 1957), pp.134-35. On 1871, see Allen et al., Engineers' Strikes; on the Dock strike, see Stedman Jones, Outcast London, ch.17.

union involved in a major industrial confrontation.[62]

The 1897-8 lockout has received detailed attention from a number of historians, and we will only recapitulate here the elements necessary for our broader analysis of the struggle over the reorganisation of the division of labour in the industry.[63] The EEF expanded its membership rapidly during the dispute, absorbing the district associations of the ITEA; by its close in January 1898, the Federation encompassed most large engineering firms outside the railways, with newly affiliated district associations in Hull, Keighley, Leicester, Liverpool, Nottingham, Oldham, Preston, Sheffield, the West of England, and West Yorkshire. 702 firms had joined the lockout by the time of its conclusion compared to 180 at its onset; the Federation's boycott tactics were particularly important here, persuading many London firms which had conceded the eight hour day to reverse their stand and join the lockout.[64] As one pro-employer source conceded,[65]

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[62] J. Saville, 'Trade Unions and Free Labour: The Background to Taff Vale', in A. Briggs and J. Saville (eds.), Essays in Labour History (1960); Clegg, Fox, and Thompson, Trade Unions, ch.2.

[63] For accounts of the lockout, see inter alia, Board of Trade, Report on Strikes...1897, pp.lii-lx; Clarke, 'Dispute'; Weekes, ASE, ch.4; Wigham, Power to Manage, ch.2; Jefferys, Engineers, pp.144-48; Clegg, Fox, and Thompson, Trade Unions, pp.161-68.

[64] EEF, List of Employers Who Resisted the Demand for a 48 Hour Working Week; EEF Executive Reports, 1897-98, passim; Wigham, Power to Manage, pp.53-54.

[65] F.W. Hirst, 'The Policy of the Engineers', Economic Journal, Mar. 1898, p.127. See also Board of Trade, Report on Strikes...in 1897, pp.lvi-lvii.

> It cannot be doubted that the organisers of the Employers' Federation have exercised pressure of the most extraordinary kind upon employers who did not wish to join them, and had no complaints against their work people. The Federation has compelled tactful employers to sacrifice themselves to the non-tactful; and it may be expected that some of the small firms which have been forced into the lockout will be ruined.

The ASE was even more scathing on the Federated employers' manipulation of their purchasing power to coerce sub-contractors:[66]

> The Elswick autocrats have tremendous monetary influence throughout the country, and can use it to an extent little dreamt of by people outside the engineering trade. Their purchasing power over the goods of engineering employers is enormous, hence their power over those who are dependent on their smiles. Even so, and when persuasion has failed to convince the maker of circulating pumps, or steering engines, or electrical plant, or the hundred-and-one tools used in the Federation workshops, he is "politely" reminded that orders will be missing from his book, and so the trick is done.

At its peak, the lockout involved some 45,000 men and some 25% of ASE members; nonetheless, the withdrawal of the ASE men was unable completely to paralyse production. Some major firms like Hawthorn, Leslie, and Company of Newcastle ceased production entirely, believing that their works could not be run without an adequate quota of skilled workers; most, however, continued operations at a reduced level, using blacklegs supplied by professional strike-breaking organisations like the National Free Labour Association and by promoting their labourers onto skilled men's work.[67]

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66 ASE MJ & R, July 1897.

67 B.C. Browne, evidence to Royal Commission on Trade Disputes and Combinations. Report, Cd. 2826 , P.P. 1906, LVI, q. 2574: "... Our works were out and we did not bring a single man in or try to do so; it is absurd to suppose that we could find a thousand high-class engineers willing to come and work in our place during a strike, and we had simply to let the work stand until the men were tired and came in again." On organised blacklegging, see W. Collinson, The Apostle of Free Labour, (1913); E. Barnes, Alfred Yarrow, His Life and Work (1923); 'How to Win a Lockout', by S.Z. de Ferranti, speech to Manchester District Engineering Trades' Employers' Association, Dec. 1897, reprinted in Wigham, Power to Manage, app. C; Clegg, Fox, and Thompson, Trade Unions, pp. 163-64. Early in the dispute, the EEF hired a private army of "retired soldiers, members of the police force, and others" to stand around factory gates and defend the blacklegs from intimidation by pickets. EEF Executive Reports 35, 12.8.1897.

Some indication of the significance of this latter measure can be found in a survey conducted by the EEF after the lockout in two marine and two inland districts: in the marine districts, with 69 firms a total of 450 unskilled men had been promoted onto skilled men's work (the bulk of them onto machines); in the inland districts with 52 firms, 430 labourers were promoted. (See Table 9) Even where organised labourers and craftsmen formed joint lockout committees, as in Barrow-in-Furness, old antagonisms undermined cooperation; a dispute over the payment of commonly raised strike funds at differential rates to craftsmen and labourers resulted in the demise of solidarity and a return to work by sections of the latter.[68] Although the ASE was able to raise some £366,000 (only £116,000 from outside sources, however), the strain on its finances of supporting the locked out men (including many non-unionists) which came to £30,000 per week eventually became intolerable. By November 1897, with no concessions from the employers in sight, the ASE Executive was investigating peace terms.[69]

Whereas during the previous confrontation over the reorganisation of the division of labour in 1851-2 engineering employers had sought the outright destruction of the trade unions, by 1897 a certain shift in attitudes was discernable. To be sure, Col. Dyer, waxing euphoric over a visit to the Carnegie works at Homestead in the pages of the Times, asserted that the Federated employers were "determined to obtain the freedom to manage their own affairs which has proved to be so beneficial to the American manufacturers as to enable them to compete so successfully in what formerly was an English monopoly", and

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[68] Todd, 'Engineering Industry Dispute'.

[69] Jefferys, Engineers, p.147.

Alexander Siemens the head of the London employers' association went so far as to suggest that the dispute would ultimately be settled individually between masters and men, with the unions excluded.[70] But even the most sanguinary expostulations of the trade press made it clear that not trade unionism per se, but rather craft regulation was the main target of the employers' wrath: thus Engineering wrote that "trade unionism as it is now practised in the British engineering industry....must be smashed", and Dyer himself argued that "to deprive a Trade Union of the power to retard progress and hinder development by dictating to an Employer how he shall manage his works does not necessarily involve the extinction of Trade Unionism, nor does it tend to prevent combination among workmen...."[71]

The EEF for its part insisted throughout the dispute that it aimed not to smash the ASE, but rather to establish managerial prerogatives on a firm basis once and for all. The object of a national lockout, in fact, was first and foremost to coerce the ASE Executive into forcing its members to abandon their efforts at craft regulation on a local level, hence the lockout threats even in the case of unauthorised strikes like that at Dunsmuir and Jackson in 1896. Thus with victory in sight in the fall of 1897, the EEF rejected mediation by the Board of Trade and drafted a set of 'Terms of Settlement' designed to establish managerial control over the organisation as the cornerstone of a new national system of industrial relations.[72]

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70 Dyer to the Times, 5.9.1897, reprinted in ASE, Lockout, pp.74-75; A. Siemens to Daily News, 7.10.97, quoted in Clegg, Fox, and Thompson, Trade Unions, pp.164-65.

71 Engineering, 24.9.1897, my emphasis; ASE, Lockout, p.74.

72 For the rejection of government mediation and the text of the employers' proposals, see ASE, Lockout, pp.118-26, 134-37.

The employers' demands, which formally sanctioned the workman's right to belong to a trade union, but provided for individual bargaining over piecework, and to a lesser extent over wage rates and overtime as well, were received by the labour movement and by an influential section of progressive public opinion as a major threat to the principles of collective bargaining. While the employers undoubtedly adopted an extremely restrictive view of the legitimate functions of trade unions, the ensuing controversy is revealing as much for the light it sheds on the difficulties of drawing a clear line between craft regulation and collective bargaining as for its bearing on the issues at stake in the dispute.

Sidney Webb, one of the leading canvassers for the men's case, presented the view shared by the majority of intellectual supporters of the labour movement. Decisions as to "the adoption of material, the choice of processes, and the selection of human agents" which belonged to the "employers' management of his own business" could in principle be clearly separated from the decisions concerning "the conditions under which the human agents are to be employed" which constituted the "legitimate sphere of trade unionism" and were therefore "not a matter for autocratic decision by one of the parties to the wage contract, but for bargaining between the employer who seeks to impose such conditions and the workmen who have to work under them." In practice, of course, these decisions passed "imperceptibly" into one another, so that some limited collective bargaining over the introduction of machinery became inevitable:[73]

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[73] 'What is Interference?' letter to Daily Chronicle, 24.10.1897, reprinted in ASE, Lockout, pp.116-17; for similar statements, see the letter in defence of collective bargaining signed by 15 Oxford dons, and the statement on the 'Legitimate Functions of Trade Unionism', signed by F. Harrison, J.M. Ludlow, H. Crompton, E.S. Beesly, and S. and B. Webb, in ibid., pp.133-34, 148-52. This interpretation of the issues at stake in the dispute is echoed by Clegg, Fox, and Thompson, Trade Unions, pp.166-67.

> Whether or not a machine shall be introduced or speeded up, or how many machines are to be kept running, is for the Employer, for the Employer alone, to decide.... But on what terms the new machines shall be worked, or what shall be the intensity of the toil to be exacted from each man, is clearly as much within the 'legitimate sphere of Trade Unionism' as the settlement of the Standard Rate or the Normal Day.

While the absence of a practical line of demarcation between these two spheres might in itself have cast doubt on the notion that a form of collective bargaining could be established which posed no threat to managerial prerogatives and the rights of property, the commitment of skilled engineers to practices of craft regulation in which their perceptions of market interest were fused with their identity as craftsmen rendered this prospect even less plausible. The figure involved in this debate who most explicitly recognised the limitations of the economistic conception of collective bargaining put forward by the Webbs was J.M. Ludlow, whose Christian Socialist convictions and support for cooperative production led him to advocate a conception of the worker which was not far from the craftsmen's own self-image though he rejected their exclusive attitude towards the unskilled. Thus Ludlow insisted that collective bargaining was only one of the proper functions of trade unionism:

> The Trade Union represents for me in its ultimate development the workers organised for their common benefit, and I know of no purpose of common benefit that should be excluded from its action.

Thus whereas the Webbs argued for collective bargaining over the terms on which new machinery should be worked solely as a means fo safeguarding workers' economic position, Ludlow defended it as an end in itself, and argued that the workers' rights should extend towards that notion of job property rights which the Webbs denounced:

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74 'Addendum to the declaration on the 'Legitimate Rights of Trade Unions', ASE Lockout, pp.149-51.

> ...I consider the workers fully entitled to have a voice in respect to the introduction of machinery.... The introduction of a machine may be the absolute confiscation of a worker's labour-power which is his property, and to whatever degree it amounts to confiscation, the man, I hold is just as much entitled to compensation as the Employer would be if a railway company took his land and knocked his works down, however beneficial the line might be to the public. Nor, indeed, is he alone damnified; all of his fellows are so prospectively, whom the introduction of similar machines may oust from their employment elsewhere.

The ASE Executive advised its members to reject the employers' terms because of their potential impact on collective bargaining, and the latter followed suit in two ballots in December 1897. This last display of resistance coupled with the public campaign on its behalf, allowed the union to wrest from the employers the addition of a set of explanatory notes to the Terms of Settlement which explicitly recognised the legitimate functions of trade unions. The revised terms were accepted by the ASE Executive after being ratified by a membership ballot, and the men returned to work at the end of January 1898, seven months after the onset of the lockout.[75]

The preamble of the revised Terms of Settlement set out its general principles:

> The Federated employers, while disavowing any intention of interfering with the proper functions of Trade Unions, will admit no interference with the management of their business, and reserve to themselves the right to introduce into any Federated workshop, at the option of the employer concerned, any condition of labour under which any members of Trade Unions here represented were working at the commencement of the dispute in any of the workshops of the Federated employers.

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75 See the Verbatim Report of a Conference between the Federated Engineering Employers and the Joint Committee of Affiliated Trade Unions, Nov.-Dec. 1897 (Glasgow, 1897); ASE, Lockout, pp.127-29, 134-37, 140-44, 153-62.

Six points embodied the rights claimed by the employers: 1) "freedom of employment": management could hire any worker it chose, including non-unionists, although workers were also free to join unions; 2) employers were permitted to institute piecework systems at prices mutually agreed with the individual worker; 3) firms were permitted to demand up to 40 hours overtime per man per month; 4) management was entitled to engage workers at mutually agreed rates, thereby prohibiting the ASE from contesting the wages of the unskilled; 5) limitations on the ratio of apprentices to journeymen were prohibited; 6) employers could place any suitable worker on any machine at a mutually agreed rate. The Terms of Settlement contained one novel element: a "proposal for avoiding disputes". Recognising the degree of local autonomy in the ASE, employers sought to prevent unofficial strikes over local conditions by instituting a three-step grievance procedure according to which no strike could take place without first going through a national conference between the union Executive and the EEF. In this way, the EEF hoped to contain rank and file resistance to the reorganisation of the division of labour by forcing the ASE Executive to discipline its members through the constant threat of a national lockout.[76]

The 1897-8 lockout represented a major defeat for the ASE and for the principles of craft regulation. As in 1852 skilled craftsmen seeking to defend their position within the division of labour had been unable to withstand a sustained assault from employers determined to introduce new machinery and to win control over the organisation of production. There was, however, one major

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[76] 'Terms of Settlement, 1898', reprinted in Wigham, Power to Manage, app. D, pp.285-89; ibid., pp.54-62; Weekes, ASE, pp.100-114.

difference between 1898 and 1852. The 1852 lockout came at the tail end of a major reorganisation of the division of labour, even as market conditions were beginning to change, and inaugurated a period of relative stability based on the extensive development of the new division of labour. The 1897-8 lockout, by contrast, occurred at the onset of a period of renewed technical and organisational change: in effect, both sides attempted to settle the principles in question before any thoroughgoing reorganisation of the division of labour could be emplemented. During the succeeding decades, employers sought to use the advantages conferred upon them by the Terms of Settlement to reorganise engineering production, while skilled workers were determined to defend their craft status in the workshops, whatever policies the ASE Executive might adopt at the national level. The extent of the reorganisation of the division of labour in engineering during the years before the First World War woudl depend to a great extent on the progress of this struggle.

## Printing: Towards the First Composing Machine Agreements

While printing employers during the second half of the 19th century concentrated their attention on cheapening and intensifying the labour of hand compositors in an effort to overcome the bottleneck which traditional methods of composition placed on the rapid expansion of output, particularly on daily newspapers, they were acutely conscious that such measures were ultimately unsatisfactory: a true solution to the problem of rapid, cheap, and efficient composition would require successful mechanisation. Accordingly, newspaper proprietors experimented repeatedly with various composing machines from the 1820s onwards, though no adequate solution in technical and economic terms was reached until the perfection of the linotype in the early 90s. These preliminary attempts at mechanisation, which we have so far kept to one side in our analysis, shed an important light on the introduction of the linotype both in technical terms and in relation to the respective responses of workers and employers to their use, and therefore require examination in their own right.

Despite earlier experiments, the first partially successful attempt at machine composition was the Hattersley, invented in the late 1850s and first put into operation during the following decade. The basic principle involved was that of a magazine of moveable types stored alphabetically above a typewriter-style keyboard; the compositor filled his stick by depressing the appropriate keys. Justification and distribution, however, still had to be done by hand, (or in the latter case by a separate machine), while its output - an average of 3-4,000 per hour - though greater than that of the hand compositor by some 1,500

to 2,500 ens per hour, was not sufficient to make the machine economical if all work were paid for at trade union rates. As John Southward, the premier trade journalist of the period observed:[77]

> It is by the employment of boys and girls in this process that the success of composing machines depends...it is impossible for the machines to be worked with profit if irregular labour is prohibited.

It was therefore this question of "irregular labour" on distribution which formed the main area of conflict between the unions and newspaper proprietors. Other contemporary composing machines such as the Kastenbein (used by the Times after 1872) involved similar principles, though the Thorne, developed just before the introduction of the linotype in the late 80s, included an automatic distributor, which required specially nicked and therefore fragile types. Moreover, all pre-linotype composing machines were subject to frequent breakdowns, so that none of them could be said to have offered an adequate solution to the problem of mechanical composition even in a technical sense.[78]

Despite their technical disadvantages, however, provincial newspapers began to introduce Hattersleys in small numbers from the late 1860s, thereby obliging the unions to formulate policies for their operation. The first Hattersley was

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77 Quoted in Howe and Waite, LSC, p.229.

78 For the technical development of composing machines, see Musson, TA, especially pp.99-101, and ibid., 'Newspaper Printing'; J. Southward, 'Type-Composing Machines'; J.S. Thompson, History of Composing Machines (Chicago, 1904); L.A. Legros and J.C. Grant, Typographical Printing Surfaces (1916).

introduced at the Hull Eastern Morning News in 1866; a subsequent installation at the Bradford Times in 1868, using boy labour on distribution, resulted in the closure of the office. During the succeeding quarter-century Hattersleys were installed on a number of large provincial papers, mainly in Lancashire and Yorkshire. Liverpool became the most important centre: of 33 Hattersleys still operating in 1895, 23 were located there.[79]

The introduction of four Hattersleys at the Southport Daily News in 1876 precipitated an important policy shift within the TA on the use of unapprenticed boys and girls on distribution. Already in 1868, the union's Executive had formulated a strategy of securing control over the operation of composing machines by union journeymen and apprentices rather than outright opposition to their use; now, with the support of the local branch, the EC agreed provisionally to allow the use of unbound boy labour on distribution rather than see the Southport office closed. Opposition from the districts, especially from Manchester, the strongest local branch, demanded a firm stand against "cheap boy and girl labour", but the Executive's position triumphed at the 1877 Delegate Meeting. A ballot held the following year endorsed the EC's view that the union should frame its rules with an eye to "how such machines can be msot advantageously worked by the journeyman printer, without prejudice or injury to the employer", and empowered the Executive to regulate the question on a case

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[79] Musson, TA, pp.100-101; table compiled by the TA Executive Council, reprinted in Howe, London Compositor, pp.198-99. Howe attributes these figures to 1893-4, but it seems more likely that they formed part of the TA Executive Committee's 'Report to the Representative Council on Composing Machines', which though missing from the TA records is excerpted in LSC, 'MS. Report to a Special General Meeting, 1.1.1896', LSC Special Reports.

by case basis.[80]

The diffusion of Hattersleys in provincial newspaper offices quickly gave rise to disputes with employers of much the same character as those generated by hand composition: among the most prominent were those over the level of piece prices and their relation to stab rates; unfair distribution of copy between machines and case hands and the slating of the latter; and attempts by employers to obtain higher output on the machines through copy marking (i.e., measuring output of stab hands) and bonuses. Apart from the question of cheap labour on distribution, the core of the TA Executive's attitude toward composing machines (which was in this respect identical to that of the rank and file) was so far as possible to subsume them under the existing framework of regulation for hand composition while at the same time exacting increased wages through high piece prices.

In July 1886, a conference convened by the Liverpool branch of the TA formulated a set of rules for the operation of composing machines analogous to those governing hand composition, including among other provisions the restriction of their operations to recognised journeymen and apprentices; fair distribution of copy between machine and case hands with payment for slating; and the prohibition of copy marking and bonuses.[81] After negotiations with the Liverpool newspapers a modified version of these rules was distributed throughout the TA as a model for other branches in 1889. Elsewhere, TA branches enjoyed

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[80] Musson, TA, pp.221-23; Report of TA Delegate Meeting 1877; TC June 1893, pp.5-6.

[81] TA EC Minutes, 3.7.1886, reprinted in Musson, TA, pp.223-24.

varying degrees of success in enforcing these regulations; piece prices and employers' demands for higher output posed particular problems, though no strike ensued.[82] As the pace of mechanisation accelerated after 1890 with the introduction of Thornes and linotypes, tension with employers and rank and file grievances increased apace; one result was an unsuccessful movement from Manchester to eliminate girl labour on Hattersley distribution.[83]

In London, meanwhile, the only paper using composing machines was the Times, a non-union house, so that the question of union regulation did not arise. In 1891, however, newspaper proprietors made their first attempt to introduce composing machines into society houses, Thornes at the Sportsman and Hattersleys at the Daily News. The latter expected to work the distributors with girl labour on the provincial model, but met with fierce opposition from the LSC: in the words of a representative from the Daily News chapel, union members "were not prepared to endanger compositors' work to suit any inventor." After several weeks of pressure, the paper gave way, agreeing to pay LSC members the stab wage of 38s to work the distributors, while the operators themselves would be paid by the piece.[84]

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82 See the reports of delegates to the TA Conference of Composing Machine Operators, Apr. 1893, and EC Minutes, 7.6.1890, 18.10.1890, 15.9.1891, 3.10.1891, 5.12.1891.

83 Letters to TC Apr.-June 1893; Report of TA Special Delegate Meeting Dec. 1893, pp.71-73.

84 This agreement also provided for equal distribution of copy between case and machine hands. See LSC Trade Reports 1891; testimony of Bowerman and Sanders to TA Conference of Composing Machine Operators, pp.13-17; and Bowerman to TA Delegate Meeting 1893, pp.49-50.

The Sportsman, however, presented greater difficulties for the LSC. The proprietors' dissatisfaction with output when the machines were worked on stab led them to demand a piece scale, but at rates which the LSC considered unacceptably low. Matters came to a head in February 1892, when several machines were found with their straps cut, having been doused with what the proprietors contended was beer and urine. Though the LSC compositors had apparently left the building several hours earlier, the proprietors seized on the incident to lock out the union men on the grounds of their general hostility to the machines. The LSC responded with a boycott, setting out in the process its general policy on machinery: they did not oppose mechanisation per se, but like their counterparts in engineering they insisted that:[85]

> If machinery is to be introduced, we claim a right to benefit by its introduction; but if it can only be made to pay at the expense of those who have served an apprenticeship to the trade, we submit that in such an event no real advantage is derived.

Despite the boycott, the Sportsman's proprietors held their own ground and the office remained closed thereafter to LSC members.[86]

Though proprietors anxious to speed up composing room production were prepared to fight for the Hattersley, Thorne, and other early composing machines, these did not prove adequate to the demands of daily newspaper production. Beyond their technical defects, these composing machines did not reduce overall

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85 Circular issued by LSC Feb. 1892, reprinted in Howe, London Compositor, document CXXI.

86 On the events in question, see Bowerman to RC Labour, Group C, qs.23,128-43, and to TA Delegate Meeting 1893, pp.49-50; H. Batten Smith (Ashley, Smith Ltd., proprietors of the Sportsman) to RC on Labour, Group C, qs. 28.524-63; LSC Trade Reports 1892; Press News Jan.1892, p.39; Newspaper Society MC Apr. 1892; Printers Register Feb.1892, supplement p.vii.

labour costs, requiring cheap labour on distribution to break even, and adding costs where regular compositors were employed on all tasks, as at the Daily News. Stressing the intellectual content and variety of the hand compositor's work, John Southward outlined in 1890 the essential features for the successful composing machine of the future: speed, accuracy, simplicity, freedom from breakdowns, and automatic justification and distribution. While initially the linotype could not meet these requirements, the models in operation by the early 1890s did.[87]

Invented by Otto Merganthaeler in New York in 1886 and rapidly diffused throughout American newspapers, the linotype, unlike its predecessors, did not use moveable types of the kind employed by the hand compositor; instead it cast each line as a whole from hot metal. When the compositor depressed the keys of his keyboard, a series of reversed matrices were released from the magazine which cast the letters in molten lead flowing through the machine, thereby producing a series of slugs or 'lines o'type.' The matrices automatically returned to their place in the magazine, while the used slugs were simply returned to the melting pot to be recast, solving the problem of distribution, while the matrix for each letter included the appropriate amount of spacing, thereby eliminating the need for internal justification, though the operator remained responsible for hyphenation and justification of columns. At the same time, the linotype proved capable of producing an average of 6,000 ens per hour, as much as four to five hand compositors.[88] The linotype, as a result, quickly swept the field

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87 Southward, 'Type-Composing Machines', and his Progress in Printing and the Graphic Arts during the Victorian Era (1897).

88 See the technical works cited in note 78 above, and Southward, Progress in Printing.

of its rivals: according to a TA survey, by 1895 there were over 250 linotypes operating in the provinces to 33 Hattersleys and 14 Thornes.[89] By February 1896, according to the Linotype Company's published figures, 157 printing establishments were using a total of 743 linotypes.[90]

Despite its rapid success in the field, contemporary observers - technical experts, employers, and workers alike - were quite unsure of its potential impact on the hand compositor. Two related issues figured prominently in the ensuing debate: the level of skill required to operate the linotype and its potential effects on employment. One leading line of interpretation, which found supporters among both employers and workers, derived from orthodox political economy. This view, similar to that propounded by engineering employers at the April 1897 machine conference, held that the introduction of the linotype, whatever its short-run effects, would ultimately increase the volume of employment by increasing demand through lower prices; we may call it the Theory of Increasing Demand.[91]

Optimism about the level of skill required to operate the linotype went together with this positive view of its potential effects on employment. On the eve of mechanisation, most compositors, having lived through generations of

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89 TA EC survey in Howe, London Compositor, pp.498-99.

90 Linotype Company, Report of Directors to the 7th Annual Meeting of Shareholders 1896, Webb Coll. EB LXXIV, f. 61.

91 For a general statement of this argument, see J. Samuelson, Labour-Saving Machinery (1893), and Webbs, Industrial Democracy, pt.II, ch. VIII; for early examples of its application to the printing trades, see the frequently reprinted article by an American master printer, T. De Vinne, Printers' Register Sept. 1889, Vigilance Gazette, Apr. 1889; TC Sept. 1889; Printing News, Jul.1894; STC Apr. 1891; and speech by the General Secretary of the TA, H. Slatter, in TC Jan. 1891.

false alarms, simply did not believe that composing machines would ever pose a real threat. A whimsical poem printed in the Typographical Circular in 1889 thus derided the possibility of an "iron comp.", concluding that:[92]

> ...The summer time will come again and winters' winds will blow,
> And many a harvest time will come again and go,
> Ere the thing of cranks and gearing takes the place of pen and ink,
> Or supplants the toiling typo with his power to work and think.

Even once linotypes were widely introduced, many observers argued that they still required the use of a fully trained hand compositor. In 1890, Southward had drawn attention to the inherent limits of mechanisation:[93]

> ...Much more has to be known than is necessary for the typewriter operator.... If the machine compositor can't read his copy and deal with it as the ordinary compositor does he can't make the machine remunerative. What is gained in typesetting is lost in correction if the operator isn't a properly trained compositor.... The manual compositor...is not a mere animated machine, picking up type, and arranging it in a tool. He is deciphering his copy, spelling the words ...punctuating them, and probably just before coming to the end of each line considering how to make a proper division of the word according to etymological rules and printing customs. This cannot be done for him by any machine however ingenious.

Speaking three years later, with the diffusion of the linotype well underway, Southward reiterated his basic conviction on the indispensibility of the fully trained compositor, while arguing that vigilant trade unionism was essential if compositors were to secure a fair share of the benefits of mechanisation, in contrast, for example, to the experience of sewing machine operators.[94] In a similar vein, the American master printer T. DeVinne's widely reprinted article on the linotype in America argued that the mechanisation of composition, like that of the printing press, would both increase the total demand for skilled

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92 'The Type-Setting Machine', TC June 1889, p.10.

93 Southward, 'Type-Composing Machines'.

94 Speech to the Glasgow branch of the British Typographia, Southward Collection, St. Bride's Foundation Institute Library.

labour and would require better workmanship, thereby enhancing rather than weakening the position of the skilled craftsman.[95]

Trade unionists, were, of course, quick to assert the continuing indispensibility of skilled hand compositors as machine operators. Some union spokesmen went so far as to claim that the increased pace of linotype work required greater attention and concentration from the operator than did hand work (and therefore entitled the former to a higher reward).[96] Rank and file critics of mechanisation, on the other hand, did not claim that composing machines eliminated the need for skilled labour, nor were they on the whole concerned to refute the general economic arguments of their opponents on a theoretical level, preferring to draw attention to the actual displacement of hand labour brought about by their introduction. Where such critics engaged the Theory of Increasing Demand, it was to note that while the overall demand for labour in the economy might indeed grow as a result of the mechanisation of composition, the increase might well take place in another sector than their own: the linotype might multiply engineers while decimating compositors.[97]

Perhaps the most important set of expectations, those of the employers, remain more obscure. It would be important to establish to what extent printing employers hoped, like their counterparts in engineering, to use machinery to

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95 See note 91 above.

96 Slatter, in TC, Jan. 1891; TC June 1893; STC Apr. 1891, May 1892; LSC, 'Report of Special Committee on Composing Machines', LSC Trade Reports, 1896.

97 Print 15.7.1896; Printing News, Oct. 1892, Aug. 1893, Sept. 1894.

free themselves once and for all from the "unfair and vexatious conditions" imposed on them by the typographical unions. The disarray of employers' organisation in the early part of this period - permanent employers' associations in printing were formed largely as a result of the conflicts over the linotype - means unfortunately that our principal source for the early 90s is the trade press, a source which presents added difficulties because of the latter's London bias. The trade press generally supported the Theory of Increasing Demand on ideological grounds, especially in the early 90s. As the displacement of hand compositors multiplied, however, giving rise to more acute conflicts between unions and employers, it began to echo the hardening position of the latter: the argument that a linotype really required no more skill to operate than a typewriter, which became a favourite theme of employers' grievances, also became prominent in trade comment.[98] In a similar vein, the British and Colonial Printer and Stationer, a leading London-based trade paper, observed in a special issue on the linotype in December 1895:

> Though mechanical composition, owing to its economy, will beyond doubt also tend to increase the amount of composition, it can never so multiply it as to find occupation for the great number it will displace.... In a more or less early future we are certain to witness the departure of the familiar newspaper 'comp.' with the steady 'click, click, click, of the type in his stick...'[99]

The few retrospective comments by employers support the view that their initial response, conditioned by the failure of previous experiments in mechanical composition, was one of scepticism as to the significance of the linotype and its impact on composing room skill requirements, with their attitude hardening as the capacities of the machines made themselves felt. Thus Sir

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[98] See BCPS 18.1.1894.

[99] Ibid., 25.12.1895, p.1.

Edward Lawson, the proprietor of the Daily Telegraph, rallying a meeting of London newspaper owners for a revision of the LSC's composing machine scale at a meeting in December 1895, noted that when he first saw the linotype he found it "beautiful" but was convinced that it would never work.[100] Similarly, George Eaton Hart, the proprietor of the Financial Times explained in 1903 the initial willingness of the employers to concede that linotype operators should be recruited from the ranks of fully-trained compositors:

> ...The majority felt that, given the requisite ability for manipulating a keyboard and the acquirement of technical knowledge of the machine, the training which a compositor received in the rapid decipherment of manuscript, spelling, and punctuation, was a necessary factor towards making a skilful operator.

But this opinion was by no means unanimous and shifted in the course of the subsequent conflicts with the unions:[101]

> On the other hand, the inventors of the machine, and one or two isolated printing houses, claimed that the compositor was not now a necessity. Any educated typewriter or clerk could, they said, after a few months' training, operate the machine equally with the old-world compositor, and at a lower rate of wages. The Economic Printing Company was formed to demonstrate this, and to some extent was successful. It is beyond question, however, according to the opinion of most leading practical printers, that it does not require the training of a compositor to successfully work the Linotype or similar machines.

While the Linotype Company later turned against the skilled compositors, it too did not originally see their elimination as part of the machine's appeal. On the contrary, the manufacturers sought from the outset to establish good relations with the unions, encouraging its machines to be worked by apprenticed compositors. Thus in 1892, the Economic Printing Company, a subsidiary of the Linotype Company itself signed an agreement with the LSC to hire society compositors at a 45s stab rate, though the agreement soon collapsed over

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100 Report of the Meeting of Newspaper Proprietors and Printers with London Member of the LUA, 7.11.1895, Webb Coll. EB LXXIV, f. 57, p.10.

101 G.E. Hart, 'The Trouble in the Printing Trade', Magazine of Commerce, June 1903, p.398.

complaints of low output and the LSC's refusal to negotiate a piece rate. Still, at the time of the Sportsman dispute, the chairman of the Linotype Company was sufficiently persuaded of the LSC's good faith to write to the Royal Commission on Labour defending it against charges of opposition to machinery, and as late as May 1893, he praised the fair conduct of trade unionist towards machinery at a stockholders' meeting.[102]

Whatever their initial attitudes towards machinery, the best way to understand the development of printing employers' strategies - like those of skilled workers - will be in the context of the unfolding conflicts over its introduction, to which we now turn. The timing, as well as the form, which these struggles took varied significantly from region to region, according to the divergent patterns of industrial structure, union political style, and relations between unions and employers, especially between London and the provinces. It will accordingly be necessary to treat separately the evolution of these conflicts in the English provinces, London, and Scotland in the course of producing an overall account.

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102 Statement quoted by Webbs, Industrial Democracy, p.407; letter to RC on Labour reprinted in Press News, Aug.1892. On the Economic Printing Company and the LSC, see Child, Industrial Relations, p.175; on negotiations between the TA and the Hattersley and Thorne companies, see TA EC Minutes 1893, passin and Musson, TA, p.228.

Provinces

The first wave of introduction of the linotypes was centred on provincial papers, where weaker union organisation and the smaller scale of production made proprietors quicker to experiment than their London counterparts. Within a few years of the installation of the first linotypes in the offices of the Newcastle Chronicle in 1889, with the elimination of initial technical flaws, these machines were sweeping the field of their competitors on provincial papers. The proliferation of composing machines brought in its train a multiplicity of different local arrangements for their operation: stab and piece rates as well as hours and conditions of work all varied significantly from town to town. At the same time, employers' efforts to secure increased output were leading them to adopt methods of output measurement and bonus payment which were anathema to union regulation.

As a result, the TA Executive found itself increasingly pressed to formulate a uniform set of rules for the operation of composing machines. The union's efforts were guided by their underlying strategy toward mechanisation - one which they shared with the rank and file - : the status quo ante should be defended as far as possible without actually opposing the introduction of the machines themselves. The existing framework of regulation should be strictly applied to the machines so that neither hand nor machine compositor should experience any disadvantage, while at the same time the men sould receive a fair share of the benefits from increased productivity. In this context, no change

was envisaged in the mode of regulation: union rules would continue to set minimum standards for the jobs open to their members, with the detailed conditions of operation to be settled through local negotiation with employers.

The first step in this direction was the convening of a conference of composing machine operators in February 1891. Neither this conference nor the Delegate Meeting the following September (the first in 14 years), however, were able to establish a code of regulation for the machines. The only principles to emerge from these gatherings were the reaffirmation of the restriction of machine work to recognised journeymen and apprentices, and the opposition to bonus systems and output measurement, though the delegates proposed as well that mechanisation serve as the occasion for a reduction of the working week to 48 hours.[103] It was only in March 1893, after several years of continuous negotiations at branch level that the TA Executive was able to formulate a rudimentary working code for composing machines: the working week was fixed at 48 hours on night work (on morning papers) and 50 for day work (evening papers); stab rates were pegged at a minimum of 5s above hand rates, with the piece rates for the various machines set as a proportion of existing hand rates.[10]

By this time, the strategy of strict control was already creating problems with employers, particularly in relation to demands from the latter for increased output and lower piece rates. Officially, the EC's view was that compositors on stab work - whether case or machine - should neither guarantee to produce a

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103 Report of 1891 Delegate Meeting; Musson, TA, pp.224-25.

104 TA EC Minutes 20.5.1893; the rules themselves are reprinted in Musson, TA, p.227.

fixed output ('task work') nor place a ceiling on the numbers of lines they set. Thus the Executive prohibited an agreement for guaranteed output on machines in Newcastle, and rejected bonuses and copy marking in Manchester, Nottingham, and Bradford.[105] Where local resistance to pressures for increased output went as far as a declared limit on output, as at the Sheffield Telegraph and Bradford Observer in 1893, the EC felt compelled to intervene; the net effect of its policies, however, was to identify the union leadership with rank and file efforts to restrict output and constrain mechanisation.[106]

While no actual strikes or lockouts broke out over the operation of composing machines during these years, the union policy of tight control was placing it on a collision course with the employers in several of the most important centres of linotype operations. At the Sheffield Telegraph, for example, disagreements over output and piece rates were assuming an acute form in early 1891. Throughout the year the proprietors charged that the machine operators were failing to work the linotypes at full capacity and demanded a piece rate of 3d/1,000 ens as a solution; the men, in turn, proclaimed with Executive backing their readiness to resign rather than accept such a rate, and complained of excessive supervision and speed on the machines. Though a confrontation was avoided, the proprietors appear to have used the displacement

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105 TA EC Minutes 16.9 and 18.10, 1890, 2.10.1891, 3.6 and 29.7, 1893; Conference of Composing Machine Operators, p.24: "The President said the Council had over and over declined to sanction the marking of copy, and if the Nottingham operators did it they had only themselves to blame."

106 TA EC Minutes 25.2 and 19.11, 1893.

of labour resulting from mechanisation as a means of victimising union activists.[107] In Newcastle, the introduction of the linotype under a system of copy marking accelerated the discharge of older men. But once copy marking was prohibited, the Chronicle and the Journal simple hired young men at bonus wages to set the pace. The branch president was dismissed in 1893 for "chapelling" one such operator for "slogging", and several other union militants were sacked later in the year for refusing to accept output measurement; all received strike pay from the Executive.[108] Similarly, in Nottingham, the treasurer of the Guardian chapel was dismissed, and the overseer charged the Father of the Chapel with operating a limit system. Thus the proprietors announced that if output did not improve they intended to "clear all out, whether old servants or not, and have a fresh set."[109]

Even as newspaper proprietors were growing restive at union restrictiveness, the actual experience of composing machines was breeding a wealth of grievances among the rank and file. The bulk of these grievances concerned the relation between machine and hand work. First and foremost was hand compositors' fear that the linotype would displace them outright. Whatever the ideological force of the Theory of Increasing Demand as a guide to long-term employment prospects

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107 Ibid., 11.3.1891; 2.1, 20.2, 27.2, and 24.9, 1892; 2.2.1895. See also the testimony of the Sheffield branch to Conference of Composing Machine Operators, pp.28-30.

108 TA EC Minutes, 25.2, 4.3, 18.3, 1.4, 16.9, and 25.11, 1893; letters to TC Jan and May 1893; reports of strike pay in TA Half Yearly Reports, June and Dec. 1893, memorial of Newcastle Branch, 'To Newspaper Proprietors Using Composing Machines', in EC Minutes 18.3.1893.

109 Ibid., 17.6.1893.

in the industry, the short-run experience of mechanisation particularly in Sheffield and Newcastle fed the anxieties of the rank and file. By December 1893, the union estimated that in 16 towns 217 machines had already displaced 262 men, and the actual figure may well have been larger.[110] Another major complaint stemmed from the relationship between machine and case hands working in the same office. Frequently, proprietors concerned to make the machines pay kept their operators well supplied with copy while the case hands stood idle; to the latter this practice was simply a more pernicious form of slating. Mechanisation led naturally to fully developed forms of piece-stab, creating large disparities in income between hand and machine compositors, and provoking conflict of interest between case hands anxious to minimise the impact of mechanisation on their wages and employment and machinists seeking to maximise their earnings by accepting piece rates or bonuses.[111] Finally, compositors claimed that the linotype required an intensification of work for the machine operators themselves. As the Newcastle branch put it in their demand for the 48 hour week:[112]

> Our experience...has conclusively proved that...a man can not remain at a machine eight hours, continuously working his fingers and his brain, without being very much more exhausted than by hand compositing.

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110 Report of TA Delegate Meeting 1893, p.44; for a more optimistic estimate by the Linotype Company, see ibid., p.169. For complaints about displacement, see EC Minutes 1893, passim; letters to TC Jan. and May 1893; Conference of Composing Machine Operators, p.30.

111 1891 Conference on Composing Machines, summarised in Musson, TA, pp.224-25; TC June 1893; Conference of Composing Machine Operators, p.30.

112 Memorial in TA EC Minutes 18.3.1893. See also speech by Slatter to Conference of Midland Branches, 29.4.1893, in TC June 1893: "The work of the machine was far more exacting than hand labour."

Thus throughout 1893 pressure mounted from the branches on the EC to convene a Delegate Meeting to consider its policies toward composing machines.[113] A speaker at a conference of Midland branches in April 1893 summarised the general attitude of the rank and file:

> Was it right for men to work machines when hand compositors were standing? The machines ought to be regulated not to a maximum but to a minimum.

In this spirit, the conference called for the promotion of stab work on machines and the enforcement of equal slating for case and machine hands.[114]

With the TA Executive under simultaneous pressure from employers and the rank and file, a special Delegate Meeting convened in Sheffield in December 1893 to formulate a comprehensive policy toward composing machines. Open to rank and file influence, this Delegate Meeting enacted a strategy which represented the apogee of strict regulation. Local agreements should embody three basic principles: 1) compositors should receive a "fair and reasonable share of the benefits"; 2) machines should result in shorter hours; 3) "...the ordinary staff of the establishment should have the first right and the first choice to operate the machines, and so minimise as far as possible the displacement of labour" (i.e., existing hand compositors should work the machines rather than younger men recruited from outside). Similarly, the delegates sought to restrict cheap labour by prohibiting employers from training their apprentices on the machines alone: only apprentices in their final two years could work the machines. The EC view that training on the machines should take place at the employers' expense

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113 TA EC Minutes 1893 passim.

114 TC June 1893; see also calls for high piece rates to discourage mechanisation in ibid., Mar. 1893, opposition to piecework on machines, ibid., Aug. 1892, and a prediction of a "pitched battle" over machinery, ibid., Sept. 1893.

was likewise reaffirmed: trainees should receive the stab rate for at least three months, and union members were forbidden to learn to operate the machines in their spare time.

Following the traditional hostility to piecework in the union, the Delegate Meeting considered a proposal that all machines should be worked on stab. While some delegates argued that in addition to the traditional moral and economic objections to piecework, its operation on machines created an incentive to higher output and thereby displaced more hand workers, news hands, as in the pre-mechanisation debates, argued that stab work would simply encourage copy marking, resulting ultimately in a demand from employers for piecework effort at stab wages.[115] This latter perspective won the support of a large majority, and delegates concentrated their attentions on resistance to pressures for increased stab output: a resolution was passed prohibiting machine operators from accepting bonuses, marking copy, or assisting "in any method which may be suggested for the purpose of testing the amount of his composition."

At the core of the Delegate Meeting's strategy was the view that "machines, being an innovation, should be treated as such, and they as members of the Typographical Association should make them as costly as possible to the introducers." Accordingly, the delegates restricted the hours of work for machine operators to 48 on a day and 42 on night work - though the resolution of the

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[115] For previous debates over piecework, see above, pp. 140-42.

1891 DM for a 48 hour week had not yet been implemented - in part to minimise the displacement of labour. Minimum stab rates for linotype work were fixed at 40s (day) and 42s (night) and piece rates at 2½d/1,000 ens (day) and 3d (night) with time and a half for overtime; in most cases these ran well beyond the 10% increase proposed by the EC. Finally, the dual system (piece-stab) was prohibited and equal access for copy demanded for case hands.[116]

Rank and file demands for watertight control over composing machines had thus been enacted as formal union policy, but as the experience of preceding years already indicated, the Executive would find it nearly impossible to enforce the resolutions of the Delegate Meeting in the face of determined opposition from employers. During the next few years, disputes over the operation of the linotype multiplied in the branches, as employers pressed for acceptable piece rates and higher output. In Newcastle in 1894, turnover apprentices were put on linotypes, and a full-scale strike over piece rates on the Leader and the Chronicle was narrowly avoided, though four unionists were dismissed.[117] Similarly, union activists at the Sheffield Telegraph charged in 1895 that the management was operating "...an organised system...by which men...likely to maintain society principles were being gradually got rid of". In February of the same year, the proprietors posted notices offering to teach men the linotype in their own time; those who refused were dismissed.[118] As employers' attitudes

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116 Report of Delegate Meeting 1893; Musson, TA, pp.228-30.

117 EC Minutes 12.5 and 1.9 1894; TC Oct. 1894; Half-Yearly Report, June 1894.

118 EC Minutes 2.2 and 18.2 1895; 25.1.1896.

hardened on the question of tuition, the Sheffield experience was frequently repeated; similarly, friction over union rates on linotypes led to stoppages and dismissals in Blackburn, Bolton, and Kendal in 1894-95, to cite only those cases where strike benefits were paid.[119]

Employers did not long remain content to pursue their resistance individuall As in engineering, the struggle over new technology precipitated the development of wider forms of collective organisation. In February 1894, a deputation from the Linotype Company supported by several large provincial newspapers met the TA Executive to demand lower piece prices; in April, a conference of linotype users in small towns (populations under 120,000) met in Manchester to demand proportionally lower piece prices, sending a delegation to convey this message to the EC. These initiatives culminated a year later in the formation of the Linotype Users' Association (LUA), which would become a national organisation of newspaper proprietors.[120]

At the same time, the TA Executive found itself involved in hostilities with the Linotype Company itself. In 1893, the EC had entered negotiations with the various composing machine companies, hoping thereby to alleviate rank and file pressures; though no agreement was reached on piece prices, the manufacturers' responses were cordial, especially from the Linotype Company. By 1894, however, the unions' restrictionist policies - especially their insistence on paid tuition -

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119 Ibid., 8.2.1896; Half-Yearly Reports, Dec. 1894 and Dec. 1895.

120 EC Minutes 28.4.1894; BCPS 19.5.1895, p.8. Cf. also Musson, TA, pp.233-34, who mistakenly dates the formation of the LUA in 1896. The correspondence with organised proprietors is reprinted in Report of TA Delegate Meeting 1893, and summarised in Musson, TA, p.228.

had incensed the Linotype Company to the point of establishing its own training schools to loosen up the labour market. Having fallen out with the LSC over similar issues, the Company placed advertisements in all the major papers addressed 'To Unemployed Young Men' calling upon them to come and be trained to the lucrative occupation of machine compositor. Here was a real threat to the unions' hold over the trade: whatever their objections to composing machines, they had been able to restrict their operation to fully trained compositors and thereby exert considerable control over working conditions; if the labour market were thrown open to all comers, craft regulation and with it the position of hand compositors might be entirely swept away. A fierce polemic ensued, in the course of which the Linotype Company accused the TA of antagonism toward labour-saving machinery. Complaining bitterly of the exhorbitant wages paid to machine operators, the Company's directors announced that they no longer intended to submit to "the inexorable demands and dictation of the compositors' trade unions" now that they were training their own operators; plans were already underway for a second school in Manchester.[121]

In the face of these threats from the employers, the TA Executive, which had always placed control of the machines above the strict regulation of working conditions, rapidly began to give way. As the number of linotypes multiplied, the position of case hands in news offices became increasingly tenuous: to prevent their complete elimination, the EC abandoned its opposition to the dual

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121 See advertisements reprinted in TC Oct. 1894, and 'The Ravings of the Linotype Company Directors', in TC Nov. 1894; TA EC Minutes, 25.7.1894.

system, an action endorsed by the newly created Representative Council.[122] With the spread of victimisation on the question of paid tuition and with the spectre of the Linotype Company's training schools, the Executive retreated here as well, permitting operators to accept free training in their spare time. As the Executive told the Representative Council in 1895, the conflict over training schools threatened the linchpin of union strategy, restriction of machine work to fully trained compositors:[123]

> In their attempt to enforce these rules the EC have been on several occasions thwarted by the action of the Linotype Company in recommending to new users of the machines, operators who have qualified without any remuneration at their 'school' in London. The users, in many cases, have not been slow to avail themselves of these men, and, as a matter of course, our members employed in such offices have been displaced. Under these circumstances, it is a matter for serious consideration whether it would not be policy on the part of the Association to make the question of tuition an open one between the users of the machine and the branch.... Against these propositions it may be argued that by adopting them we should have so many more operators than there would be machines to work that the rush for 'sits' would inevitably bring down prices; but on the other hand, it must not be forgotten that they would be our own members who had joined the Association on principle, over whom the Linotype Company had no influence; whereas under present circumstances, the influence over imported operators is in the hands of the Company, who are not slow to hold them up as a menace to us in any dispute between ourselves and the users.

Already in 1894-95 the Executive had found itself unable to enforce the 40s minimum stab wage in local negotiations, pressing instead its original goal of a 10% advance, but it had not felt able to accept lower piece prices than those fixed by the 1893 Delegate Meeting.[124] Arguing to the 1895 RC the necessity of flexibility in this area, the Executive pointed to the crux of the problem:[125]

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122 'Report of RC Meeting', TC Oct. 1894.

123 TA EC 'Report on Composing Machines', quoted in LSC, 'MS Report to a Special General Meeting, 1.1.1896', LSC Special Reports.

124 Musson, TA, pp.233-34.

125 TA EC, 'Report on Composing Machines'.

> ...These are the only conditions under which we can maintain control of the machines, which if once lost...would be far more disastrous to our trade than their introduction has been.

Chastened by the victimisation of union activists, by rising expenditures on strike benefits (the amount spent on strike pay 1893-97 was triple that of the preceding five years),[126] and by the defeat of strikes over composing machines in London and Scotland (Scottish Leader Edinburgh 1890, Sportsman London 1892, and Glasgow Evening Citizen 1893), the RC accepted the Executive's arguments for a strategic retreat.[127]

The newly formed Linotype Users' Association quickly came to see a national agreement on the machines as the solution to its problems with the unions. Thus in June 1896, the LUA approached the TA EC proposing a conference to standardise wages and working conditions in provincial towns. The union was initially unwilling to abandon its traditions of local bargaining, which allowed it to bring national resources to bear upon isolated employers, but under pressure from the LUA, which had helped to obtain a revised composing machine scale from the LSC in 1896,[128] representatives from the two organisations met for the first time in February 1897.[129] Despite the proliferation of local disputes in 1896-97, the RC in 1897 reaffirmed the rank and file's commitment to local bargaining, which the LUA saw as "inimical to a general and lasting adjustment of rates and rules."[130]

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126 Child, Industrial Relations, p.172.

127 'Report of RC', TC Nov. 1895.

128 See below, pp.246-53.

129 TA EC Minutes, 11.6.1896; Musson TA, pp.234-35.

130 TC Nov. 1897; EC Minutes 28.5.1898.

As the negotiations dragged on, employers' attitudes hardened. Already in 1896, Lascelles Carr, the Secretary of the LUA and proprietor of the Cardiff Western Mail had demanded that the EC give him assurances that their men were not operating "a private understanding whereby their output was limited", and later dismissed all unionists who refused to mark their copy.[131] The columns of the Linotype Users' Monthly Circular for these years abound with complaints about exhorbitant piece prices and restriction of output; the linotype operator was frequently compared with an ordinary typist and appeals for confrontation were by no means absent. One employer for example contrasted the timidity of the LUA with the militant posture of the Engineering Employers Federation, while another urged the speedy establishment of a provincial training school:[132]

> We shall not be able to get wages much reduced till there are more men able to take up the work. Again the establishment of such provincial schools would be a most salutory check on the demands of the TA, and would be of the greatest help in case of a dispute leading to a strike. The Morning management came off victorious in their strike because there were men in London whom they could call in at a moment's notice; but where would any provincial office be in like circumstances?

The general view of employers was summarised by a correspondent to the LUA Monthly Circular on the eve of the first agreement with the TA:[133]

> Unless the employers are prepared to present a united front to the operators they will be gradually eaten up, and the advantage of the machines will be gradually eaten up by the exhorbitant demands for working them.

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131 Ibid., 31.10 and 7.11, 1896.

132 LUA MC June and Sept. 1898, Oct. 1897; on the Morning strike, see below, p.251.

133 Ibid., Nov. 1898.

While the organised employers were stepping up pressure on the TA for a national agreement, discontent with the effects of the machines was intensifying among the rank and file. By far the most important source of distress was the displacement of hand compositors; the years of the most rapid diffusion of the linotype, 1894-96, coincided with the trough of the trade cycle to create the highest level of unemployment among compositors since the end of the Napoleonic Wars.[134] Estimates of the actual extent of displacement varied: a correspondent to the Typographical Circular spoke of hundreds of compositors displaced and the Secretary of the LSC estimated 20% displacement in the provinces; one employer, however, put the additional unemployment at 5%.[135] The TA Executive itself estimated in 1895 that in offices using composing machines, the total number of men had dropped by a third from 1445 to 881.[136]

All observers agreed, however, that significant displacement was taking place, particularly among older men; it was said that only young men could sustain the pace of the machines, an argument adduced to justify high piece rates.[137] The problem of displacement dominated rank and file consciousness during these years, as dark fears for the future of the skilled compositor multiplied. One Liverpool compositor, no doubt overstating the general pessimism, went so far as to claim that the trade was no longer worth following because,[138]

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134 Musson, TA. p.103.

135 TC May 1894; Printing News, Apr. and Jul. 1894.

136 The TA's estimates, table reprinted in Howe, London Compositor, pp.498-99, are based on 44 offices using 242 machines; the Linotype Company itself reported that by the end of 1894 there were 423 machines in use in 94 offices, so that even subtracting London offices, the TA figures are most likely an underestimate, Report of Directors to 7th Annual Meeting of Shareholders, 1896, Webb Coll. EB LXXIV, f. 61.

137 TC May 1894 and Apr. 1896; TA Half-Yearly Report, June and Dec. 1895; Report of TA Delegate Meeting, 1898.

138 Letter to Printers' Register May 1896, pp.4-5.

> the composing machine...does the maximum amount of work with the minimum amount of labour; it throws men out of work all over the country.... Composing and distributing machinery is going to do for printing what Richard Arkwright's spinning jenny did for the cotton industry.

Despite these dire predictions, we must be careful to note the limits of mechanisation during the late 90s: comparatively little bookwork and almost no jobbing work was being done by the machines, and even on daily newspapers display work remained the preserve of the case hand as did making up and imposing. Before we conflate the compositor with the handloom weaver, it should also be noted that machine operators in most instances were receiving higher wages for fewer hours than their manual competitors.[139]

The anxieties of hand compositors gave rise to a variety of proposed solutions, some old, others more novel, at least within typographical ranks. Many of the rank and file continued to support a hard line against the machines, demanding the preservation of high rates for machine work and the rigorous application of union rules.[140] Though the inability of the Executive to enforce these policies had become increasingly evident, one writer, lamenting the use of linotypes on new classes of work, argued as late as 1897: "It is useless saying we cannot resist the machine; I say we can and we must."[141]

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139 'A Revolution in Printing', Sunday Times 20.1.1895, in Webb Coll. EB LXXIV, f. 29; LUA MC May 1900; Diblee, 'Printing Trades', p.11.

140 E.g., TC May 1894

141 Ibid., Feb. 1897.

One area where restrictionist attitudes were gaining support was in hostility to piece rates, especially on machine work. Letters to the Typographical Circular called for the abolition of piecework on machines, the branches sent resolutions to the EC, and conferences of the Midland and Southern branches passed similar proposals in 1896-7 and 1899 respectively.[142] These movements culminated in the substantial support shown for the abolition of machine piece work at the 1898 Delegate Meeting, though not sufficient to change union policy.[143]

The most important focus of rank and file demands, however, was the upsurge of interest in a shorter working week. While TA members had endorsed the principle of a legal eight hour day by a small majority in 1888, the idea had aroused little interest.[144] Now, with mounting unemployment, compositors, like their counterparts in engineering, turned increasingly to the shorter working week as a solution to the problems of the trade. A correspondent to the TC spoke for a growing number of his fellows when he argued:[145]

> There is only one method of grappling with this everspreading evil (the displacement of hand labour by machines - jz), and that is to be sought for in the reduction of the hours. These machines are introduced to save labour and we must see to it that they really save labour.... If machinery is to be a blessing for all, and not merely a means of extracting extra profit for the employer, the hours must be reduced as near as possible in proportion to the saving effected by mechanical development and improvement.

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142 Ibid, Aug. 1894, Oct. 1897; Musson, TA, p.200.

143 Report of TA Delegate Meeting 1898.

144 See above, ch.III, note 140.

145 TC May 1894.

While some protagonists of the shorter working week saw the problem in terms of industrial action, others advocated political methods, often employing an explicitly socialist analysis.[146] In fact, the mid-1890s saw a tremendous efflorescence among compositors of interest in labour political representation and broader socialist ideas: a number of correspondents to the Typographical Circular argued that the ultimate solution to the problems of mechanisation lay in the socialisation of the means of production, and they appear to have found a not unsympathetic audience.[147] Branches such as Nottingham and Birmingham declared their allegiance to labour political representation in a socialist language in 1894; by 1897, a socialist had been elected Assistant Secretary (in 1900 General Secretary), and the TA became one of the first unions to affiliate to the Labour Representation Committee in 1900.[148] It would not perhaps be too much then to claim of the TA as the Labour Chronicle did of the Edinburgh Typographical Society, that it was "driven to socialism" by the struggle over the linotype.[149]

Alongside the growth of socialist ideas oriented toward the state, mechanisation also encouraged compositors to turn to a form of socialist activity with deeper roots in the union's history, producers' cooperatives. Since 1869 the TA had been associated with the Cooperative Printing Society in Manchester,

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146 See ibid., Sept. 1895 and Feb. 1897.

147 Ibid., Dec. 1894; Jan., Jul., and Sept. 1895.

148 Musson, TA, pp.346-52.

149 Labour Chronicle, May 1895, quoted by Gray, Labour Aristocracy, p.173

which, however, rapidly became more a "profit-sharing joint stock company than a producers' cooperative."[150] In 1893, labour newspapers were established in Bolton, Newcastle, and Bradford, aimed at providing employment for displaced hand compositors while providing an organ for independent labour activity.[151] Similarly, the Nottingham, Leicester, and Blackpool branches founded cooperative printing offices during the same period, while Northampton unsuccessfully proposed to the 1893 Delegate Meeting that the Executive invest in such projects to relieve unemployment.[152] At the 1898 DM, a resolution was passed supporting cooperative production, looking forward to the day when the TA, "having become an association of producers...could do without the capitalist altogether, and when they should reap the just reward of their labour."[153] As a result, several more cooperative printing offices were established in the years that followed, often with TA investments, though the movement never grew large enough to have a significant effect on employment.[154]

Despite the growing anxiety among the rank and file about the effects of composing machines, the TA Executive concluded an agreement with the LUA on standard stab rates for linotypes in December 1898. As if to lend urgency to the negotiations, a strike broke out in Bath over the 48 hour week for machine operators while the two sides were meeting; the proprietors of the Chronicle

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150 Musson, TA, p.360.

151 Newcastle Evening News, first issue, 1893; BCPS 31.5.1894; letter to TC Nov. 1893, 'Composing Machines V. Cooperative Newspapers'. In 1893, the Echo, a strike paper published by the locked-out compositors of the Glasgow Evening Citizen was also transformed into a labour daily; copies in St. Bride's Foundation Institute Library.

152 Musson, TA, p.361; TC Jul. 1893; letter to ibid., June 1898.

153 Report of TA Delegate Meeting 1898, p.29.

154 Musson, TA, pp.361-62.

and the Argus were able to keep their papers running with London-supplied blacklegs, a lesson which was doubtless not lost on the TA Executive.[155] Inspired by the strength of rank and file feeling and by the difficulties of framing an agreement, the EC left piece rates to local bargaining. Stab rates for the linotype were set at 12½% above existing case rates (much disagreement would ensue as to whether this should be treated as a maximum or a minimum), with a 48 hour week for day work and 44 for night; overtime would be paid for at ordinary machine rates. Most importantly, all operators were to be members of the TA, with preference to be given to those already employed in particular offices. Apprentices could only work the machines after three years, at a ratio of no higher than one to every three journeymen, and operators were guaranteed three months' stab wages before being placed on piece rates.[156]

Although this first product of national collective bargaining recognised most of the crucial tenets of craft regulation (especially monopoly of access to the job to trained society craftsmen and restriction of the number of apprentices), opposition to the linotype agreement emerged rapidly from the branches, as rank and file members feared that it would lower existing machine rates. The conflicts over mechanisation had precipitated unprecedented upheavals in the internal government of this historically oligarchic union, bringing about new levels of membership participation and the establishment of a Representative Council earlier in the decade;[157] unilaterally jettisoning union policies agreed

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155 LUA MC Dec. 1898.

156 TC Jan. 1899.

157 On the internal government of the TA, see above, pp.85-87.

by the Delegate Meeting, the Executive found itself once more accused of dictatorial conduct: as a correspondent put it to the TC:[158]

> The members naturally object to having their thinking done for them, considering it a reflection on their intelligence; and steps ought to be taken...to make such a course impossible in the future. Such a system of settling vital questions is too primitive for present day trade-unionists. Our officials must be delegates - not dictators.

By April 1899, resolutions attacking the agreement and the Executive had been forwarded by 26 branches, including Manchester, Birmingham, Leeds, Sheffield, and Newcastle.[159] This opposition movement reached its zenith at the RC meeting in May. The delegates emphasised the Executive's previous disregard for the rates laid down by the Delegate Meeting, and criticised the details of the agreement, censuring particularly the absence of a minimum stab wage or a higher rate for overtime, together with the extension of opportunities for apprentices to work the machines. By a vote of 21-7 the delegates instructed the EC to reopen negotiations with the LUA on these points.[160]

The Executive, confident of its control over the union and conscious of the employers' militancy, refused to be bound by the RC's decision; arguing that only moderation could ensure control of the machines, they put the issue to a referendum. With roughly half the members voting, the EC position triumphed by more than 2 to 1 (3,566 to 1,496 in favour of the agreement itself and 2,919 to 1,611 against the RC-backed censure of the EC.)[161] While traditional Executive domination of the union played an important role in this outcome, so too did the absence of any alternative strategy and the material benefits enjoyed by machine operators.[162]

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158 TC Apr. 1899.

159 TC Mar.-Apr. 1899.

160 Report of RC, 1899.

161 TC Nov. 1899.

162 TC May, June, Sept., and Oct. 1899.

The 1898 linotype agreement by no means ended disputes between provincial compositors and their employers; indeed as we shall see in the next chapter, the interpretation of the agreement itself became a major source of disputes. Nonetheless, the agreement shaped the terrain on which future skirmishes would develop, and by ratifying skilled craftsmen's control over the machines it ensured the latter a favourable position in subsequent struggles over the frontier of control itself.

## London

The progress toward collective agreements on composing machines in London in many respects moved through similar stages as in the provinces. London newspapers were initially slower to adopt the machines, but larger and more competitive than their provincial counterparts, they introduced them more rapidly once diffusion was underway. At the same time, the existing traditions of collective bargaining compressed the time elapsing between introduction and agreement. One fundamental difference between the LSC and the TA played a crucial role in these developments: the much more extensive existence of rank and file participation in decision making in London. Unlike the TA, LSC policy was formulated by Quarterly Delegate Meetings, General Meetings were well attended, and membership ballots not infrequently reversed Executive decisions.[163] Thus inevitably, rank and file discontent with the effects of the linotype would

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[163] On the internal politics of the LSC, see above, pp.82-85.

act as a more serious constraint on the Executive's freedom of action in collective bargaining than was the case in the TA.

The first linotypes in London were installed in 1892 at the offices of the Globe, a notorious non-union house, but the LSC was able to reach an agreement the same year with the Linotype Company enabling its members to work in the latter's subsidiary, the Economic Printing Company.[164] In 1893, the LSC was forced by the newspaper proprietors to open negotiations over a composing machine scale as a condition for considering the revisions demanded by the union in the general news scale. Initially the Executive had preferred stab arrangements on the machines to safeguard the operators, but employer pressure and the traditional preference of London news hands for piecework soon prevailed, particularly when it became apparent that substantially higher wages could be earned on the machines.[165] In June 1894, a conference of newspaper proprietors agreed upon a preliminary scale for composing machines with the LSC, fixed to run until the end of 1895. The agreement specified that all operators should be LSC members with preference, as in the provinces, to be given to hand compositors in the affected offices; piece rates were set at 3¼d/1,000 on evening papers and 3¾d for morning ones - considerably higher than in the provinces - while case hands and machine operators were to 'lift' (i.e., start work and receive copy) at the same time, though provisions were made for transfers between case and machines.[166]

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164 'Conditions of Working at the Globe and the People', LSC Trade Reports 1892; Child, Industrial Relations, p.175.

165 Bowerman to TA Delegate Meeting 1898, pp.46-50.

166 The agreement is reprinted in Howe, London Compositor, pp.497-501

It is evident from these terms, which were exceptionally favourable to the LSC - indeed the union later argued that the employers had been "caught napping"[167] that newspaper proprietors did not at first recognise the full potential of the linotype nor did they intend to use the machines as a wedge to escape from craft regulation; rather the machines were immediately swallowed up within the existing framework of regulation. In this context, the rudimentary character of employers' organisations in London should be noted: despite the long traditions of collective bargaining there (which bore more resemblance to unilateral regulation with some wage bargaining added than in other industries), the London Master Printers' Association had dissolved between 1866 and 1890, reviving only in the face of union demands for a comprehensive updating of the London Scale.[168]

Dissatisfaction with the hastily agreed 1894 machine scale rapidly spread among employers with the accelerated diffusion of the machines themselves. The Economic Printing Company soon quarrelled with the LSC over the low output of its members, replacing them with non-union men; as we have seen, the Linotype Company in 1894 opened a training school in London to relieve the constriction in the labour market.[169] Disagreements between the LSC and the Company over payment for tuition led to the closing of the school to union members, and to the newspaper appeal 'To Unemployed Young Men' which so agitated the TA as well.[170]

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167 'MS Report to a Special Delegate Meeting, 14.12.1895', LSC Special Reports, p.3.

168 See above, p.26.

169 See above, pp. 230-1.

170 See the LSC's reply, 'The LSC and the Linotype', LSC Trade Reports, 1894.

The Linotype Company became greatly dissatisfied with the 1894 Scale from the moment of its inception, believing the piece prices to be prohibitive and thus a brake on the sales of their machines. Thus the Company issued circulars to London newspaper proprietors calling for a revision of the scale, and offered the LSC £20,000 worth of equipment for training its members if it would agree to lower prices; at the same time, a 'Mutual Society of Linotype Operators and Employers' was organised to provide benefits for non-union men comparable to those offered by the LSC.[171]

As a result of the Linotype Company's pressure, the LSC was having problems retaining control over the machines, despite the terms of the agreement:[172]

> Some difficulty was being experienced in obtaining the observance of the 'preference clause', coupled with the fact that the only place in which our members had the opportunity of learning (the machines - jz) outside their own offices was no longer available.

Negotiations were therefore reopened with the Linotype Company, but remained deadlocked over the question of revisions in the scale.[173]

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171 Circular in Webb Coll. EB LXXIV, f. 40; and 'Report to Special Delegate Meeting, 14.12.1895': "...The directors of the Linotype Company were up in arms immediately they heard of the terms which had been agreed on in June of 1894. Almost before the ink was dry, circulars were issued pointing out the portions of the scale to which exception was taken by the Company, and eventually both the Economic Office and the Linotype Depot or school were closed to our members..." See also LSC AR 1896 and Printers' Register, Nov. 1894. For the circular criticising the 1894 scale, see Webb Coll. EB LXXIV, f. 41.

172 'Report to Special Delegate Meeting, 14.12.1895', p.6.

173 Child, Industrial Relations, p.175, claims that a new agreement was reached but never implemented.

Meanwhile, resentment at the working of the 1894 scale was building up among London employers, who like their provincial counterparts, were aggrieved above all about high piece prices and low output. By late 1895, the linotype was in operation at the offices of the Daily Telegraph, the Globe, the People the Morning, the Lady, and the Financial Times, among others (as well as at large book firms such as Kelley's, Wyman's, and Straker's). At a meeting with the LUA in November, the London newspaper owners, led by the Morning, served notice on the LSC that the 1894 scale would not be renewed at the end of the year. Sir Edward Lawson of the Telegraph, himself a former compositor and defender of trade unions, claimed that the compositors "hamper and handicap the machines to a terrible extent", accusing them of imposing "conditions which put a premium on bad work, and which worked directly to his disadvantage"; other speakers denounced the requirement of paid tuition and the 'extras' that pushed the real cost of machine composition as high as 6d/1,000.[174]

Faced with this surge of employers' militancy and convinced of the indefensibility of the 1894 scale, the LSC Executive opened negotiations with the newspaper proprietors, prepared to compromise over a new scale. The employers were convinced that a far-reaching victory was at hand, won without a battle. The British and Colonial Printer gaily predicted the disappearance of the skilled compositor in the "more or less early future", and spoke of the union's transition from active to passive resistance as a result of the expanded labour market; this judgement was echoed by the chairman of the Linotype Company

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[174] BCPS, 26.12.1895, p.2; Lawson, in Report of Meeting of Newspaper Proprietors ...7.11.1895, Webb Coll. EB LXXIV, f.57, pp.10-11. See also Printing News, Oct. 1894 and BCPS 2.7.1896.

in the same issue.[175]

But even as employers' dissatisfaction with the working of the 1894 scale was mounting, the coincidence of the trough of the trade cycle with the introduction of the machines was generating bitter opposition among the LSC rank and file over the displacement of hand labour. Though estimates of actual displacement ranged from 5 to 20%, the LSC's expenditures on provident benefit more than doubled from 1886-90 to 1891-5, from £5,000 per year to £12,000.[176] During 1894-95, LSC activists, led by members of the unemployed chapel pressed for more militant trade policies and tighter enforcement of union rules as a remedy for unemployment. Thus in early 1894, a ballot of the membership approved for the first time a formalisation of the apprentice ratio, with a majority in favour of the extremely low figure of 1:6, half the customary ratio; the urgency of a 48 hour week was affirmed at a Special General meeting later that year.[177] The Executive argued that the results of the apprenticeship referendum were contradictory (both 1:3 and 1:6 ratios had passed) and argued than only the existing 1:3 ratio could be defended.[178] In 1895, a sub-committee on unemployment, established under rank and file pressure, identified composing machines as a major cause of increased unemployment, along with boy labour, systematic overtime, and piece-stab. A ballot on the committee's recommendations

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175 BCPS, special issue on the linotype, 25.12.1895, pp. 2, 25.

176 Child, Industrial Relations, p.179; for estimates of displacement, see above, pp.226, 235.

177 'Report to LSC Quarterly Delegate Meeting, 7.2.1894'; 'Report to Special General Meeting 28.8.1894', LSC Trade Reports, 1894.

178 LSC, 'Circular on the Revised Rules', Trade Reports, 1894.

refused an outright ban on overtime, but resolved "that no member produce more than has been agreed to by the chapel as to what shall constitute a fair day's work", in hopes of resisting the intensification of work.[179]

On the question of composing machines themselves, the News Department's Annual General Meeting in 1894 demanded strict regulation: "as practical men, it must be their great object to control the machine; otherwise there would be great displacement of labour." The meeting emphasised particularly the importance of simultaneous 'lift' and 'cut' for machine and case hands to ensure equal distribution of copy.[180] Similarly, an editorial in the semi-official Printing News noted the "feelings of dread if not actual hostility" manifested by compositors in the face of "a revolution which threatens the livelihood of a large body of workers"; likewise one of its correspondents demanded that machines must not be allowed to become cheaper than hand labour.[181]

In December 1895, the union Executive reached a provisional agreement on a revised composing machine scale with London printing employers: the daily news scale agreed in 1894 was replaced, and supplemented by new scales for weekly news and book work. The key changes involved a reduction in piece prices of

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179 'Report of Sub-Committee on the Unemployed', Reports of Quarterly Delegate Meetings 7.8 and 6.11, 1895, in LSC Trade Reports 1895

180 A proposal to eliminate piecework on the machines was rejected. Report of News Department Annual General Meeting, 14.4.1894, in Printing News, May 1894.

181 Ibid., Apr., Sept., 1894, and 'The Unemployed', ibid., May and Oct. 1894.

¼d/1,000 (instead of the ¾d demanded by employers); the reduction of the paid tuition period from three months to four weeks (as opposed to its abolition); and the abandonment of the principle of simultaneous lift and cut for machine and case hands, though a guaranteed minimum wage was introduced to protect the latter. At the same time, the revised scale included the first formal recognition by employers of a 1:3 ratio of apprentices to journeymen in weekly news and book offices (they had long been prohibited entirely in London dailies).[182]

Following union rules, the Executive submitted the agreement to a Special Delegate Meeting for ratification. Arguing that "whether we like it or not, the machine is undoubtedly 'here to stay'", the EC pointed out that a failure to ratify the agreement would result in "entirely losing the hold which at present the Society possesses over the machines." In the immediate future, LSC members would find the Telegraph offices closed to them, and perhaps soon many others.[183] An additional factor promoting moderation on the part of the Executive was the fear, much played upon by the trade press, that if attempts to safeguard the interests of the case hands led as far as a strike, the machine operators would secede from the union to cut a separate deal with the proprietors.[184] Despite these warnings, the delegates rejected the provisional agreement, demanding the preservation of the old piece prices and the principle of simultaneous lift. At a Special General Meeting on 1 January 1896, the membership as

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182 Revised Scale in Howe, London Compositor, pp.504-6.

183 'Report to Special Delegate Meeting, 14.12.1895'; LSC Trade Reports, 1895 on trouble at the Telegraph, see Report of the Linotype Company Shareholders' Meeting, 27.5.1895, Webb Coll. EB LXXIV, f. 59.

184 See 'Report to Special Delegate Meeting, 14.12.1895'; Printers' Register, Feb. 1896; BCPS 6.2.1896; MPA MC Feb. 1896.

a whole endorsed the delegates' action by a large majority, voting a strike levy of 6d per week, ignoring a warning from the Executive that "...in this instance discretion will be the better part of valour...." As the Linotype Company and certain employers were seeking a confrontation, the EC urged the members to consider that "...an adverse vote will probably place them - so far as public sympathy is concerned - in the undesirable position of attempting to fight machinery."[185]

In the event, however, the predicted general collision between employers and the LSC failed to materialise. A group of American newspaper editors and managers who had been advising the London proprietors on strategy at the time observed that, "the first thing that strikes us is the want of unity among London newspaper owners, or the absence of any common policy."[186] By contrast, the LSC Executive could later report that "probably at no previous period of the Society's history has a question arisen having so strong a tendency to unite the trade as the one under notice", despite the tensions reported between machine and case hands. The significance of the unity and militancy of LSC members was not lost on the proprietors: it was[187]

> ...a fact to which the tone characterising the meetings held in the earlier part of the year bore excellent and unmistakable testimony, and which undoubtedly had the effect of bringing about an agreement, which in other circumstances might not have been obtained.

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185 'MS Report to Adjourned Special Delegate Meeting 11.1.1896', 'MS. Report to Special General Meeting, 1.1.1896', LSC Special Reports, of the ballots, see LSC Trade Reports 1896.

186 'Synopsis of Opinions and suggestions during the Past Fortnight by American News Editors and Managers Passing through London re the Agreement between the London Morning and Evening Papers and the LSC which Expires 31 December 1895', n.d., Webb Coll. EB LXXIV, f. 33.

187 LSC AR 1896, p.20.

In the context of the newspaper proprietors' reluctance to undertake joint industrial action, the LSC Executive was able to pacify Lawson of the Telegraph at least for the moment with a promise to seek plenary powers for future negotiations. While eschewing an immediate lockout, Lawson nonetheless announced his intention to implement the new scale unilaterally, attempting to persuade his men to leave the union, and in an interview with the Trade Committee, "...claimed...his right to be master of his office...to be able to use the machines when and how he liked."[188] A confrontation did develop, however, in the offices of another firebrand of employers' militancy, the Morning, over the tuition clause and preference for old hands. The Linotype Company supplied 25 blacklegs from its training school, and according to its directors, the proprietors of the Morning,[189]

> ...were able to make the change from a unionist office to a non-unionist office without the least disturbance to the business - it never occasioned there the loss of a half-hour in bringing out the paper.

The Morning was further aided by a court injunction prohibiting the LSC from either withdrawing its men or picketting the office.[190] A further dispute in April led to the closure of the office to LSC members.[191]

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188 'MS. Report of Interview with Sir Edward Lawson, 23.1.1896', LSC Special Reports, MRC; see also 'MS. Report to a Special General Meeting, 25.1.1896', in ibid.

189 Report of the Linotype Company Shareholders' Meeting, 23.3.1896, Webb Coll. EB, LXXIV, f. 60, p.25.

190 'Report to a Special General Meeting, 25.1.1896', LSC MS. Special Reports.

191 Printers' Register, Mar. and June 1896.

With employers on the offensive and opponents of the agreement unable to propose a clearcut alternative strategy to that of the Executive, a ballot of the membership at the end of April granted the EC plenary powers to renegotiate the scale with the employers. In the ensuing negotiations, the Executive were able to capitalise on the strength of rank and file feeling to extract an additional concession from the employers, the restoration of simultaneous cut and lift for case and machine hands with a guarantee of fair distribution of copy, and the revised scale was signed in July.[192] One possible explanation of the employers' moderation, beyond the endemic disunity in their ranks, lay in the striking profitability of the linotype, even under union restrictions. Composing room costs were among the most important expenses of operating a newspaper, and estimates of the savings effected by the machines ranged as high as 20-40%, even with higher wages for machine operators; an authorative study from the following decade, when the capacities of the machines had become better established, put the savings at 66% over hand labour.[193] The greater speed of linotype production also meant that papers could increase their circulation and so gain more than their actual saving on labour costs. In this context Lawson's claim that the Telegraph was only saving 4% on its costs helps to explain that paper's special militancy.[194]

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192 'Report of Special Committee on Composing Machines', LSC Trade Reports, 1896; the revised agreement is reprinted in Howe, London Compositor, document CXXIV. See also C.W. Bowerman, 'Provisional Agreement re Machine Composition' 13.1.1896; 'The Machine Question', 9.6.1896; and 'Amended Proposals re Working Conditions', LSC Trade Reports, 1896.

193 BCPS 26.12.1895; TC Dec. 1895, TJ May 1910; G.E. Hart, The Linotype: A Comparison of Cost (FMP, 1908)

194 Interview with Lawson, 23.1.1896', LSC Special Reports.

While the revised agreement averted a full-scale confrontation between the LSC and the employers over control of the linotype, it by no means satisfied militants in either camp. Print, a short-lived paper founded in May 1896 to further "the interests of the rank and file of British printers", published an editorial in July criticising the Theory of Increased Demand and predicting increased displacement of labour as a result of mechanisation; another article in the same issue mounted a merciless attack on the LSC EC, urging the members to stand firm against the unjustified reductions in piece prices demanded by employers.[195] Similarly, many employers found even the revised agreement a major fetter on their ability to reap the full benefits of the linotype, and inaugurated demands for a daily news stab rate to contain the upward movement of machinists' wages. But as in the provinces, the 1896 agreement on composing machines provided a framework within which subsequent conflicts between workers and employers would be fought out, without settling the question definitively; the upshot of these conflicts will be examined in the next chapter.

## Scotland

In Scotland, by contrast to London and the English provinces, the advent of the composing machine did not result in a collective agreement between the union and the employers covering the region as a whole during the 1890s. Even more

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195 Print, 15.5.1896, 15.7.1896. The Secretary of the LSC was at this time arguing that reports of displacement of labour had been exaggerated and that the problem would ultimately prove to be of transitory importance. Interview with C.W. Bowerman, ibid., 15.10.1896.

than the TA, the Scottish Typographical Association remained a loose confederation of local societies dominated by the main centres of Glasgow and Edinburgh. This structure discouraged the growth of regional collective bargaining since the vast disparity of conditions between the main centres and the lesser provincial towns undercut the basis not only for unified campaigns by workers but also for the cooperation among employers that was so important in the establishment of regional and national collective bargaining in the rest of the printing industry and in engineering.[196] When the Scottish employers were able through the threat of a general lockout to extract a national agreement from the STA in 1913 in the face of the latter's attempt to implement unilateral changes in working conditions, this new departure followed upon a major upsurge of workers' militancy and upon the example of the English employers.[197]

At the same time, the relative success of employers' efforts to cheapen and intensify hand compositors' labour paradoxically limited the effects of the introduction of the linotype on the position of the latter. Outside of Glasgow, wages were on the whole lower and craft regulation weaker than in comparable English centres, despite the revival of apprenticeship controls in the late 80s and early 90s. Piece-stab and female labour in particular offered employers methods of lowering labour costs which were widely used in Edinburgh and Scottish provincial towns. The introduction of composing machines was therefore slower and less dramatic in its effects than in England, and the disputes it evoked centred on its connection with employers' attempts to depress piecework earnings

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196 See above, pp. 87-88.

197 See below, pp. 328-30.

more than on compositors' strategies of tight control. Conversely, in many areas mechanisation led to a direct improvement in the position of skilled compositors since the large gains in productivity it offered made possible an easing of employers' pressures to cheapen and intensify hand labour.

None of the pre-linotype composing machines appear to have made any impact in Scotland, but it was in a Edinburgh newspaper office in 1890 that the first strike over the linotype in Britain occurred. The proprietor of the Scottish Leader, having purchased a set of linotypes which were then still in an experimental stage, demanded that the compositors bind themselves as operators for a two year period at fixed rates. (42s stab for two months; 3d/1,000 thereafter) Upon their refusal to sign a long-term contract of this kind, the compositors were ordered to leave the union or face dismissal, and a dispute over the supply of 'matter' (printed work) from an unfair office precipitated a lockout the following day. The union, offering to seek arbitration, proposed that either the London or Manchester scales be applied, and a public meeting was organised under the auspices of the Trades Council to draw attention to the contrast between the paper's policies and its liberal principles. In the event, the proprietors found the union men difficult to replace and the linotypes less profitable than expected, and in 1892 they unsuccessfully approached the STA with a view to reopening the office. The following year, the linotypes were withdrawn and replaced with women and turnovers on hand work; the paper itself collapsed in 1894.[198]

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198 STA ARs 1890-94; STC June and Sept. 1890; TC July 1890.

By 1891 linotypes had begun to appear in Glasgow in significant numbers, demanding a response in terms of union policy. The STA, like its English counterparts, was above all concerned to secure control over the machines for their members:[199]

> What we have to fear, and against which we must protest with all our energy is the introduction of unskilled labour to work the machines, thereby supplanting the technically educated compositor.

Accordingly, the 1891 Delegate Meeting formulated two basic rules for the operation of composing machines: 1) all machines should be worked by duly recognised journeymen and apprentices in their final year (to be included in the overall ratio), and 2) no compositors were to work on piece rates until they could earn the branch's stab rate.[200] In the second of these provisions, as in the conflict at the Scottish Leader and later at the Glasgow Evening Citizen, we can see Scottish compositors' anxiety to prevent the use of the machines as a means of securing cheap labour rather than of improving productivity, a fear which stemmed from the experiences of previous decades. Though the union formulated no other general rules for the operation of composing machines, compositors in Scotland as in England sought to win higher wages and shorter hours from their introduction, while protecting the hand workers' access to copy.[201]

The initial reaction of Scottish compositors toward the linotype was one of optimism in relation to its effects on the prospects of the hand compositor,

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199 STA AR 1890, pp.28-29.

200 Report of STA Delegate Meeting 1891, p.32.

201 See e.g., the rules of the Aberdeen branch, STA AR 1891, p.8; testimony of G. Templeton to STA Delegate Meeting 1898.

provided that strict conditions of operation were maintained.[202] In 1893, however, a dispute over piece prices provoked another major lockout at the Glasgow Evening Citizen, as compositors complained that only one operator could earn the stab rate,[203] and at a public meeting called during the strike, a compositors' speaker set forth their claims in relation to mechanisation in terms that recalled the attitude of the LSC at the time of the Sportsman dispute:[204]

> Machinery may or may not be an unmixed good for the labouring classes, but it ought to be a help for skilled artisans. And if it were brought into play for the purpose of robbing labour of its just rights and claims, than it was incumbent on us to say, 'Thus far it shall come, but not farther, and this is in the best interests of our trade and our country.'

The locked out compositors formed a strike paper, the Echo, under a similar banner which expressed the concept of the rights of skilled labour in the language of an earlier tradition of political radicalism:[205]

> Liberty is dear to us, and we shall not barter our birthright - as the proprietors of the Citizen would have us do - for their mass of pottage.

After some initial success, the Echo, like other papers founded by displaced hand compositors in England, was transformed into a labour daily financed by local unions; its growing insolvency, however, precipitated a commercial take-over some two years later.[206]

Though the STA convened a conference on composing machines in 1895, linotypes were slow to be introduced in Scotland, and it was only in 1896-97 that the region

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202 STC Apr.-May 1892.

203 STA AR 1892; The Echo 9.1.1893.

204 Ibid., 10.1.1893.

205 Ibid., 9.1.1893.

206 Gillespie, STA, pp.121-22.

saw a substantial inrush of machines. Linotypes were then installed in Paisley, Inverness, Aberdeen, and three new Glasgow offices, as well as in the non-union Scotsman office where substantial displacement of hand labour occurred.[207] As in the English provinces, the difficulties of defending high piece rates, coupled with an attempt to maximise employment, led Scottish compositors to favour stab rates on the machines:[208]

> They saw that they were not likely to be able to maintain in the future the very high rates on piece that they had been able to maintain in the past.... On the other hand, a stab rate would provide more employment than a piece rate.

While the STA EC emphasised the limited impact of mechanisation on employment and therefore opposed any attempt to frame a general machine scale, the Glasgow branch, which had experienced the greatest displacement of labour opened negotiations with this aim in mind in 1896.[209] Following the resolution of an impasse over the 48 hour week for machine operators, the Glasgow branch signed an agreement on a piece scale with the employers in 1898, over the objections of the Executive. A stab agreement quickly followed and this became the chief mode of operating the machines throughout Scotland.[210]

Although many branches continued to report displacement of hand compositors the STA Executive still felt able to contend in 1898 that:[211]

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207 STA ARs 1895-97.

208 Templeton in Report of TA Delegate Meeting 1898, pp.44-45.

209 See STA ARs 1896 and 1897, p.5; also 'Extinguishing the Comp.', STC Jan 1897: "The displacement of hand labour...has not yet...reached an active stage."

210 STA ARs 1896-99.

211 STA AR 1898, p.5.

> The encroachments of composing machines have been felt, but not to the extent that many of our members anticipated. Those who were unfortunate enough to be displaced by their introduction have been able to find situations elsewhere.

Thus when the Scottish Linotype Users' Association proposed a conference to establish a uniform scale for working the machines in 1900, the STA Executive refused, preferring to continue the branch level negotiations. Significantly, the employers made no attempt to force the issue and no regional agreements were signed until 1913.[212]

The relatively sanguine attitude of the STA Executive toward composing machines and its reluctance to engage in regional collective bargaining, sprang not only from the internal traditions of union government, but also from the slow spread of the machines outside Glasgow and its more limited impact on the position of hand compositors in provincial towns. Thus while the cheapness of labour and weakness of union organisation discouraged mechanisation - Edinburgh book firms as late as 1908 saw cheap female labour as an alternative to mechanisation[213] - the improved productivity and profitability it afforded seems to have made possible an improvement in the position of Scottish compositors. Thus in Paisley, the local branch reported that the linotype led to a decline in the demand for casual labour, while Falkirk noted that the machines stemmed the flow of apprentices into news offices. Even in Glasgow, where the pattern more nearly resembled that of England, mechanisation brought about the elimination of the few existing pockets of female labour.[214]

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212 STA AR 1901, pp.13-17.

213 Neill to Fair Wages Committee, q. 4593; Printers' Register, Jan. 1910.

214 MacDonald, Women in the Printing Trades, pp.172-74; STA ARs 1896, p.42 and 1897, p.39.

## Conclusions

As the nineteenth century drew to a close, significant divergences had opened up between the outcomes of conflicts between skilled workers and their employers over the introduction of new technology and the reorganisation of the division of labour in printing and engineering. In engineering, the employers had seized on the introduction of new machine tools as the occasion to redouble their assaults on craft regulation, and by means of their victory in 1898, had wrested from the ASE its formal acceptance of managerial prerogatives in the manning and operation of machinery and in the general organisation of production. In printing, on the other hand, skilled workers had more or less peacefully obtained relatively complete control over the operation of composing machines, securing advances of wages and reductions in hours for the machine operators, together with special rules to protect the interests of the remaining hand workers. At the same time, however, there were significant regional variations in the outcomes within printing, attributable to differences in industrial structure and union political styles. Thus in Scotland, the introduction of the linotype did not provide the occasion for the emergence of regional collective bargaining as in the English provinces, while the LSC's superior bargaining power and more participatory style enabled it to win better protection for hand workers and larger advances for machine operators than could the more authoritarian TA.

While a comprehensive explanation of these divergences must await our account of their consolidation and development up to 1914, some preliminary reflections may be in order here. The first concerns the essential similarity

in the reactions of skilled engineers and compositors to the threat posed by the introduction of new machinery. In each case, skilled workers' basic aims were to neutralise the impact of mechanisation on their position in the division of labour by capturing exclusive rights to work the new machines, to prevent any encroachment on craft regulation in matters such as the method of wage payment or the intensity of supervision, and where possible to win more advantageous terms in relation to traditional union concerns such as wages, hours, and overtime.

Thus in a sense, the Webbs were correct to observe a transition in skilled workers' attitudes towards machinery from opposition to a demand to control its conditions of operation.[215] But if skilled workers had in this respect as in others learnt the new "rules of the game" (to use Hobsbawm's memorable phrase),[216] an alternative set of values underlay their efforts to control the impact of new machinery on the division of labour which often threw them into conflict not only with their employers, but with the logic of the market economy itself. The employers themselves had no doubt that the shift in workers' attitudes was essentially tactical, and observed that the latters' efforts to safeguard their place in the division of labour irrespective of technical change continued to mark the essence of their position. Thus one employers' spokesman drew an explicit parallel between the policy of the ASE and that of the Luddites:[217]

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215 Industrial Democracy, pt. II, ch. VIII; see also Brown, Sabotage, ch. 4.

216 'Custom, Wages and Workload' in Labouring Men.

217 B. Taylor, 'The Machine Question and Eight Hours', Cassier's Magazine, Nov.189

> Just as the handloom weavers of Yorkshire and Lancashire denounced the power loom for superseding their labour, so the ASE...say the labour-saving machinery introduced into modern engineering shops has taken the place of their craftsmen. Only, instead of denouncing and trying to destroy, they insist upon the exclusive (or practically exclusive) rights to the working of the machinery by the members of their union.

Another engineering employer explicitly confronted the Webbs' contention that unions were no longer opposed to machinery, arguing that while,[218]

> This may be true in the main...the conditions of introduction are often so severe that they practically become prohibitive; for it is not worth while for an employer to introduce labour-saving machinery if the machinery is to be 'throttled'.

As employers became more militant, moreover, each union was forced to retreat somewhat from its original strategy of strict regulation. In fact, the demands ultimately accepted by printing employers in relation to control of the machines and the shorter working week were clearly more 'extreme' than those which precipitated the engineering lockout. Skilled engineers and compositors were therefore set apart not by the character of their response to mechanisation, but rather by their differential ability to enforce their demands.

Of crucial importance in this lesser ability of skilled engineers to defend their position in the division of labour was the vulnerability of their lines of demarcation to competition from other groups of workers. Whereas the static technology of the composing room had produced sharp and defensible lines of demarcation, the previous wave of technical change in engineering had created a

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[218] F.W. Hirst, 'The Policy of the Engineers', Economic Journal, Mar. 1898, p.125. The author had heard the chapter of Industrial Democracy on trade unions and machinery given as a lecture at the London School of Economics.

space in the division of labour for new grades of workers who could expect to be promoted onto better jobs opened up by the new machine tools unless obstructed by the ASE; at the same time, the variable uses of the new machines made it impossible to draw up a list of machines which could clearly be reserved for craftsmen. The structural weakness of the ASE's position had been exacerbated by its own aggressive and sectionalist policies, which alienated not only the new organisations which had been formed by the less skilled, but also the more powerful craft unions in adjacent trades whose assistance might have enabled the engineers to repel the employers offensive.

The differences in the behaviour of the employers were as striking as the similarities between that of craftsmen in the two industries. Engineering employers proved capable of creating a strong and centralised national organisation to attack the pretensions of craft regulation, while printing employers remained divided amongst themselves, albeit more strikingly in the London newspaper trade than in the provinces where the Linotype Users' Association was beginning to develop more durable forms of employer cooperation and collective bargaining. The superior cohesion and militancy of the engineering employers was the product not only of the objective differences between their market position and that of their counterparts in printing, but also of subjective differences in attitude rooted in their distinctive experience of technical change and industrial conflict. Thus engineering employers' experience of a previous wave of technical change in the 1830s and 40s made them more prepared to believe that the innovations of the 90s might allow them to displace skilled workers from their central position in the division of labour, while the intensified normal conflict of the late 80s

and early 90s disposed them to accept the risks involved in a full-scale confrontation with the unions. In this respect, compositors were fortunate that the breakthrough to mechanical composition came in the newspaper sector, where workers were particularly well organised and employers at once divided amongst themselves and able to afford the costs of a favourable settlement, rather than in book printing, where employers were both more cohesive and more militant.

While these variations in structure and strategy were already beginning to generate divergent results in the two industries by the turn of the century, their outcomes had by no means been fully determined. Neither the collective agreements on composing machines nor the Terms of Settlement fixed the new division of labour emerging in each industry; rather each set of agreements defined the framework within which skilled workers and their employers would contest its shape in the decade and a half before the First World War. In the succeeding two chapters, we will trace the consolidation and modification in these preliminary settlements to 1914, first in printing and then in engineering.

# Chapter V

## Confrontation and Consolidation: Printing 1898-1914

By the close of the last decade of the 19th century, the initial storm clouds over the introduction of the linotype had cleared. In London and the provinces alike employers had signed collective agreements conceding control of the new machines to union compositors; despite the evident displacement of numerous' case hands, especially those over forty, obituaries for the skilled compositor had proved premature. Yet these arrangements had taken shape rapidly, before employers had been able either to grasp or put into effect the full productive potential of the linotype, and no major test of strength between themselves and the unions had cemented the new balance of forces. In fact, the few strikes connected with the introduction of the machines during the 1890s had generally resulted in victory for the employers. Hence the collective agreements of the 1890s marked an uneasy truce rather than a final settlement, as resentment over their terms and consequences abounded in both camps.

During the succeeding decade discontent with the high cost of machine composition and with union restrictions on the use of the machines prompted printing employers, particularly London newspaper proprietors, to seek major modifications of the linotype scales. But while several individual proprietors proved willing to challenge the unions directly, with varying degrees of success, the intensity of competition and the perishability of their product made newspape

owners as a group shrink from a major confrontation. It was rather the large book and jobbing firms, with their more standardised, less perishable product, who led the resistance to the demands of the printing unions. The linotype was less central to the operations of the book firms, which found the less cost-reducing monotype more suitable for their needs; the book proprietors' resistance was also stiffened by their declining profit margins, their vulnerability to provincial competition from plants enjoying non-union wages and working conditions and their own opportunities for decentralising production to the countryside. Meanwhile, continuing unemployment among older hand compositors, coupled with widespread discontent over the intensifying pace of work, led the rank and file and ultimately the printing unions themselves to press with increasing vigour for a shorter working week and tighter enforcement of craft regulation, especially on machine work. The resulting campaign for a universal 48 hour week, conducted in alliance with the new unions of the less skilled under the auspices of the National Printing and Kindred Trades Federation (NPKTF), gave rise to a general strike of printing workers in London in 1911; a nationwide strike was averted only by a last minute agreement between provincial unions and employers' associations. While the outcome of the strike in London was initially something of a stalemate, ultimately resolved in favour of the unions through government intervention and tight wartime labour markets, the ability of the unions to withstand a prolonged strike marked a crucial step in the consolidation of their control over composing machinery and in the ascendency of craft regulation in the industry as a whole. Similarly, in Scotland, an alliance between skilled compositors and the new unions of the less skilled was able to win the elimination of the underpaid female labour which had been the historic source of weakness for

the STA, especially in Edinburgh, and thereby to establish the control of Scottish compositors over machinery and working conditions generally on a par with that of their English counterparts. In this chapter, we will trace the mounting pressures towards confrontation between workers and employers which reached their crescendo in the 1911 London printing strike, together with the growing consolidation of craft regulation in the industry.

## London

While conflicts over the introduction of the linotype had initially been most acute in the provinces, with the conclusion of the first collective agreements the storm centre of conflict between workers and employers shifted to the faster-paced and more profitable world of London newspaper printing. The LSC's acceptance of a revised piece scale in 1896 by no means silenced employers' complaints about the working of the machines. The large number of 'extra' charges in the new scale pushed up the price of machine composition substantially; many proprietors accordingly began to demand the institution of a stab rate for daily news work on the machines. (Stab rates were already in force for book and weekly news work on the machines.) Initially, as we noted earlier, the LSC had preferred stab work until it could ascertain the capabilities of the machines, while the proprietors had called for piece rates to push up output. By July 1897, feeling among daily news compositors ran so strongly in favour of piece rates that they vehemently rejected an offer from the employers of a stab rate at a level that they had demanded only four years before.[1]

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[1] Bowerman to TA Delegate Meeting 1908, pp.46-48.

At a conference early in 1899, a group of newspaper proprietors led by the Linotype Users' Association demanded a cut of ¼d/1,000 in the piece rate and the creation of a stab rate for daily news work.[2] At a mass meeting held in late March, news compositors overwhelmingly rejected a daily news stab rate as denying them the full value of their labour, as interfering with their freedom, and as conducive to the abuses connected with piece-stab.[3] The proprietors of the St. James Gazette then locked out their society compositors, replacing them with blacklegs from the Linotype Company's training school, much as union leaders had feared; the office remained closed to the LSC thereafter.[4] LSC members responded in May by voting a strike levy of 1s per person for six weeks to prepare for a possible confrontation. In the event, however, only the Morning Herald (the former Morning, which had returned to a union basis under new management earlier that year followed the St. James Gazette's lead, threatening a lockout if a news stab rate were not introduced. Under this duress, the Trade Committee accepted a stab wage of 63s per week, which was in turn rejected by the News Department. The threatened lockout ensued, followed by union picketing, boycotts, and circulars; the office was closed to the society, but the paper itself did not long survive, and the St. James Gazette followed it into oblivion soon thereafter.[5]

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[2] LSC 'MS. Report to a Special General Meeting, 25.3.1899', Special Reports, MRC.

[3] Ibid.; see also above, pp.141-42.

[4] Printers' Register, May 1899.

[5] Ibid., Sept. 1899; LUA MC June, July, and Sept. 1899; MPA MC Sept. 1899; LSC Jubilee Souvenir, 1848-1923 (1923), p.22. For a statement by the new proprietor of the Morning Herald of his views on the issues at stake in the dispute, and the advantages of a news stab rate, see MPA MC Sept. 1899, pp.332-36.

Meanwhile, renewed militancy was developing among the LSC rank and file. In February 1899, a Delegate Meeting passed a resolution demanding a rise in the ordinary stab rate - which had stood at 38s since 1891 - to 42s; a supporting statement to the Trade Committee from the chapel of the large book firm Wyman and Sons argued sharply that the real wages of London Compositors had fallen behind those of the machine minders in absolute terms, as well as relatively behind those of their provincial counterparts, while the strong financial position of the society justified a militant approach. At the same time, a movement led by the unemployed chapel pressed for a conference with the employers to secure the 48 hour week and to place new limits on overtime. The Executive cautioned that raising the book scale would only accelerate the departure of large book firms from London, but its objections were overridden by the members.[6]

In the face of this upsurge of militancy, the employers temporarily abandoned their demands for a cut in machine piece scales and for a daily news

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6 LSC Trade Reports 1899; LSC AR 1899, p.22; 'MS. Report to a Special General Meeting, 21.10.1899', Special Reports, which includes the text of the Wyman's resolution. The previous year had seen the LSC launch a campaign for the revision of its overtime rules which would have prohibited members from working overtime two days running without an intervening absence of eight hours from the office. After initially refusing to respect this rule, the master printers ultimately signed an agreement in March 1899 which established not only the principle of the eight hours' break, but also that overtime rates should apply to the following day's work if the compositor had not been permitted to go home the night before. LSC ARs, 1898-1900; the text of the agreement appears in AR 1900, p.41. On the movement of book work out of London, see the reply of the London MPA to the LSC's memorial of 1890, reprinte in Howe, London Compositor, pp.325-26; and the testimony of Bowerman to SC on Stationery Contracts.

stab rate. In the spring of 1900, an LSC General Meeting endorsed the proposals of the unemployed to make the 48 hour week and higher overtime rates central planks of the advance movement; speakers for the resolution argued that the reduction of the working week would lower unemployment since the intensification of labour had reached its limits during the previous decade. Given the narrow majority in favour of the 48 hour week, the Trade Committee judged the time inopportune to press the employers on the issue. Once again, however, their decision was overturned by a stormy General Meeting in September, which reaffirmed the demand for a shorter working week and a 5d/hour overtime rate.[7] The resulting memorial to the employers called for a 40s stab wage for call-hands, the 48 hour week, and an increased overtime rate. These demands were justified by reference to rapidly rising prices, especially rents, together with the increased commuting time consequent on suburbanisation; under pressure from the Executive, the union announced its willingness to accept arbitration.[8]

Initially, the employers refused to consider the LSC's demand, but faced with a strike levy they eventually agreed to accept arbitration by George Askwith of the Board of Trade.[9] In the ensuing arbitration, the LSC representative argued that the economic position of the London compositor had deteriorated relative to other skilled trades, while the linotype had effected a 20% rise in output per man since 1891. The result was a marked intensification of work for all compositors:[10]

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7 'MS. Report to a Special General Meeting, 29.9.1900', LSC Special Reports; LUA MC Oct.-Nov. 1900.

8 Memorial in LSC Trade Reports 1901.

9 'MS. Report to a Special General Meeting, 5.1.1901', LSC Special Reports.

10 Notes of the Proceedings of an Arbitration between the LSC and the London MPA before G.R. Askwith, 11.2.1901 (1901), p.56.

> Under existing conditions - the alteration in the keen competition for work perhaps - we find that the position of the compositor has materially altered in that there is a higher pressure and a higher speed...required of the worker today than formerly.

The Master Printers dominated by the large book and jobbing firms offered one basic argument in opposition: the existing disparity between labour costs in London and the provinces:[11]

> Provincial competition...is the crux of the whole question. If you make work in London more expensive than it can be done for in the provinces, it naturally follows that the work will go where it can be done cheapest.

Askwith awarded the LSC an increase of 1s in the stab rate (to 39s) and a reduction of the working week to 52½ hours (from 54); while explicitly cautioning the union in his award about the increasing importance of provincial competition in the book trade.

Askwith's warning rapidly proved well founded. Fifteen firms resigned from the MPA rather than grant the terms of the arbitration while others stepped up the pace of decentralisation to avoid the new rates, as the trade papers assured the employers that 'There's Plenty of Room Outside.[12] Large book and jobbing firms such as Unwin's (Woking), Clowes and Company (Beccles, Suffolk), Hazell, Watson, and Viney (Aylesbury), and Kelley and Company (Kingston) had all established country plants in the area surrounding the metropolis before 1900; in the wake of the arbitrator's award Wyman's, Harmsworth and Son (Gravesend and Adlard and Son were driven to follow suit.[13]

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11 Ibid., p.132.

12 R. Lake (FMP) to Industrial Council, Enquiry into Industrial Agreements, Minutes of Evidence, q. 6432; article in the Daily Express 28.3.1901, reprinted in MPA MC Jan.-Feb. 1901

13 Unwin's: A Century of Progress (1926), pp.37-38; Report of Linotype Company Shareholders' Meeting, 23.3.1896, Webb Coll. EB LXXIV, f.60, p.24; LUA MC Apr. 1901; Report of TA RC 1901; Alford, Letterpress Printing, pp.74-77. The high cost of land as well as that of labour was an added factor promoting decentralisation: see W. Hazell, lecture to the London Chamber of Commerce on 'Advantages and Disadvantages of Removal of Works from London in the Country', reprinted in MPA MC May 1905, pp.59-60; cf. also Hall, Industries of London, ch.6.

Militant spirits among the employers continued to fulminate against the LSC. Major Vane Stowe, Secretary of the London MPA was quoted in a newspaper report in June 1901 to the effect that it would perhaps have been better had a strike ensued "to teach the men the identity of interests between themselves and their employers" while urging London employers to move to the country "where labour is cheaper and the domination of the LSC can be escaped."[14] Similarly, Hart, the Managing Director of the Financial Times observed at the LUA Annual General Meeting in 1901 that:[15]

> In London our difficulties are not so much the price we pay per 1,000... it is the multitudinous and vexatious conditions imposed upon us by the Society in working these machines. Some of these are of a most troublesome kind. We have charges for lifted matter and a resistance of any knowledge of what an operator may be setting even if we are paying the piece price.

The same year brought the grievances of printing employers to the attention of a wider audience with the publication of E.A. Pratt's articles in the Times on 'Trade Unionism and the Crisis in British Industry', which accused compositors among a multitude of sins of systematically restricting output on composing machines, charges reaffirmed in a more temperate and knowledgeable reply by the Managing Director of the Manchester Guardian in the pages of the Economic Journal[16] Yet despite the exhortations of men like Hart that employers should force the unions "...to stand face to face with us as a body, in the same way that they

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14 Printers' Register, June 1901; but cf. reports of his retraction in ibid., July 1901.

15 LUA MC May 1901. 'Lifted matter' refers to block advertisements charged by the compositors even if supplied from outside.

16 E.A. Pratt, Trade Unionism and British Industry (1902), pp.148-52; G.B. Diblee 'The Printing Trades and the Crisis in British Industry', Economic Journal Mar. 1902. For employers' comments on both pieces, see MPA MC Jan.-Feb. 1902; for union refuations, see TC Feb. 1902, pp.1-4.

take care we should attack them", most London newspaper proprietors were reluctant to join the LUA or to cooperate with the Linotype Company's training school, presumably because of fears of being drawn into a confrontation with the unions.[17]

Following the settlement of the 1901 advance movement, London newspaper employers immediately resumed their pressure on the LSC to renegotiate the machine scale, demanding a stab rate for daily news work, the right to shift machine hands to case as the occasion arose, and the establishment of a standing committee composed of equal numbers of employer and union representative which would be empowered both to adjudicate disputes over the interpretation of existing agreements and to enact new rules as necessary. The employers were prepared to pay as much 67s 6d as a stab wage for morning papers (for a 42 hour week, with 47s 6d for evening papers), but the rank and file remained adamant on all three of the disputed points: the Executive reported that the membership would reject even a £10 stab rate.[18]

With negotiations still stalemated at the end of 1903, a new management at the Daily News determined to follow the example of the Morning Herald and

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17 Diblee, 'Printing Trades', pp.6-7; complaints of the Linotype Company in Newspaper Society MC May 1901.

18 'Report to Special General Meeting, 1.11.1902' and circulars of proposed changes in machine scale, LSC Trade Reports 1901-1903; Printers' Register, Dec. 1901 and Feb. 1903; statements by Bowerman and Vane Stow regarding news stab rate in ibid., supplements, June 1903, pp.iii-iv, and Oct, 1903, pp.ii-v; report by Hart to LUA Annual General Meeting, LUA MC May 1903. See also a letter from the 'LSC Vigilance Committee' insisting that machine operators should not be permitted to do case work, Fleet Street, 11.2.1903; the employers' case is set out at length in Hart, 'The Trouble in the Printing Trade', Magazine of Commerce, June 1903, pp.398-400.

the St. James Gazette in imposing a stab rate by force. In February 1904, therefore, the News locked out its union compositors, replacing them with a complete alternative staff which had secretly been recruited in advance. The experiment was not, however, a great success; according to a deputy editor of the paper:[19]

> The chaos in the composing room on that first night was so hellish, and the paper, when at last it was brought out was such an apalling journalistic nightmare, that John Burns...was hurriedly called in to effect a 'settlement.'

The compromise negotiated by Burns entailed the News rehiring its union men in exchange for a case rather than a machine stab rate (advantageous in relation to display work); the blacklegs were paid off at a cost to the paper of some £4,000.[20]

The outcome of the attempted coup de main at the Daily News, like that of previous clashes between London newspaper proprietors and compositors over the working of the linotype, heightened the uncertainty of the situation. To dispense with the services of union compositors clearly enhanced managerial freedom in the operation of the machines and might prove successful in the longer run, as it had on some Scottish papers in the 1870s; but given the complexities of producing a daily newspaper and the LSC's control over the Fleet Street labour market, such experiments might prove costly and inefficient in other respects, as at the Daily News; where persisted in they might undermine the position of an already weak paper, as at the Morning Herald, the St. James

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[19] E.C. Bentley, Those Days (1940), p.240.

[20] Printers' Register, Feb. 1904 and supplement; LUA MC Feb. 1904; MPA MC Feb. 1904; circular from Daily News 'ship, 'The Daily News and Its 58th Anniversary', Webb Coll. EB LXXVII, f.2.

Gazette and earlier at the Scottish Leader, each of which closed within a few years of dismissing their union compositors.

The settlement at the News fanned the flames of militancy on both sides. Despite the discomfiture of the News, the LUA deplored the moderation of the proprietors, observing:[21]

> It is to be hoped that the LSC will profit by the timely warning they have received. When a body of men can be secured from different towns capable of producing a 16 page edition of a London daily in the manner performed by the union men who were engaged for that purpose, it is clearly demonstrated that the trade unions do not monopolise all the best workmen in the craft. We understand that not one train was missed while the non-unionists were producing the paper.

Similarly, Hart of the Financial Times called for the free use of the machines which were "...hedged around with all kinds of prohibitions and all kinds of claims - how it should be worked and when it should be worked....", citing the example of the News as demonstrating the possibility of putting out a daily paper without the LSC. On the union side, a General Meeting overwhelmingly rejected a proposal to allow machine hands to work at case for up to 16 hours per week, fearing accelerated displacement of hand workers. Meanwhile, opposition to the settlement persisted in the News Department, though it was not until August of the following year that the London newsmen passed a resolution demanding the abolition of stab for case hands at the Daily News. Given the intensity of bad feelings and distrust on both sides, negotiations between the employers and the LSC ground to a halt.[22]

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[21] LUA MC Feb. 1904.

[22] 'Ballot on Dual System', 17.6.1904, LSC Trade Reports 1904; Resolution of News Department on Daily News, Printers' Register, Jan, 1906, supplement.

During the same period, the monotype began to be introduced in London, primarily in book houses, but also on some weekly and monthly periodicals. Applying the principle of the Jacquard loom to typesetting, the monotype consisted of two parts, a keyboard and a caster. The keyboard punched holes in a tape which when fed into the caster produced freshly cast moveable types which could be melted down and reused. As with the linotype, the traditional problems of distribution and justification were largely overcome, while the advantage for book work lay in the fact that the tapes could be stored and reused for reprints. While the monotype's cost reduction in relation to hand labour was somewhat less dramatic than that afforded by the linotype, (a savings of 50% as opposed to 66%) its special suitability for book production ensured a rapid diffusion: by 1913 60 London establishments had installed a total of 250 keyboards.[23]

The LSC began to formulate a scale for the monotype in 1902, eventually settling on a rate of 3d/1,000 for book work and 3 1/8d/1,000 for weekly news with stab fixed at 45s. These proposals' were rejected out of hand by the employers, who refused to consider a monotype piece scale and were determined to secure more advantageous terms than they had for the linotype, and no general agreement was reached in London until 1923. Most newspapers did not use mono-

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23 J.S. Elias, The Monotype from a Printer's Point of View, (FMP, 1908); Hart, The Linotype; Alford, Letterpress Printing, pp.50-63. In many respects, the monotype more closely resembled the most recent phase of innovation in typesetting than did the linotype; in early forms of photocomposition, the typesetter likewise produces a coded tape which when fed into the computer results directly in printed copy rather than in lead as with the monotype. On the monotype, see the technical literature cited in chapter IV, notes 78 and 88; on more recent developments, see A. Smith, Goodbye Gutenberg: The Newspaper Revolution of the 1980s (Oxford, 1980), especially chapter 6.

types, though the Times, then a non-union house, installed them in 1909.[24]

Despite its failure to negotiate a scale with the employers, the LSC on the whole retained control of the monotypes, most of which were worked on stab. This control was not, however, maintained without challenge from the employers: the major threat came from the latter's attempt to introduce women on the machines, which was turned back only after a complex legal battle. In the wake of Taff Vale, the London book firm of Straker and Sons introduced female operators on the monotypes; the LSC struck and were followed by all the other printing trades under the auspices of the metropolitan PKTF. The firm then unsuccessfully sought an injunction against picketing and began an action for damages against the LSC for conspiracy, which it withdrew in the face of an unfavourable decision in the related case of Ward and Lock.[25] After this preliminary trial of strength, no major employer challenged the LSC's control of the machines, though women were employed as monotype operators in some small shops in London and more frequently in the provinces, at least up to 1914.[26]

The end of 1905 saw the revival of forward movement within the LSC with the adoption by a large majority of a limit on overtime of eight hours per man

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24 When the Times changed hands in 1914 and became a union house, an agreement was reached with the LSC on a monotype scale. Child, Industrial Relations, p.182.

25 LSC AR 1904, p.32; C.J. Bundock, The Story of the National Union of Printing, Bookbinding, and Paper Workers (Oxford, 1959), pp.143-44; Clegg, Fox, and Thompson, Trade Unions, pp.347-48; see also below, p.303.

26 Cf. TA Delegate Meeting 1903, p.29. Unlike the TA, the LSC did not seek to control the monotype caster and so avoided conflict with the employers on this issue. On the monotype in London, see Child, Industrial Relations, pp.181-82; and reports of negotiations and provisional scales in LSC Trade Reports 1902-5; see also the account of the LSC Quarterly Delegate Meeting 5.11.1902 in Fleet Street, 17.1.1903.

per week. Similarly, a Delegate Meeting in January 1906 voted stiff fines for any compositor accepting the bonus payments to which the employers were resorting along with time clocks in an effort to increase output.[27]

The mounting tensions between the LSC and London printing employers came to a head over the Hampton's dispute in 1906. Following a dispute with its machine minders earlier in the year, the proprietors of this London book firm decided to convert to a non-union house, locking out its previously neutral LSC compositors along with other trade unionists. Suspicion mounted within union circles that the London MPA was masterminding the dispute in an effort to break the deadlock over the monotype scale and the machine stab rate on a house by house basis; Alf Evans of the Warehousemen and Cutters (also Secretary of the London section of the National Printing and Kindred Trades Federation) reported that at a meeting with the Hampton's manager and Vane Stow of the MPA, the latter informed him that,[28]

> ...If he was starting a printing office tomorrow, he would not employ a single Trade Unionist: and in spite of the fact that the Compositors had refused to withdraw their men, he strongly advised Mr Reeks to lock them out, and held out as an inducement that if he did so "he would undertake both to find him men and to get all his work done for him until such time as he had filled their places."

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27 'Report of Special Committee on Overtime' and ballot 14.10.1905, LSC Trade Reports 1905; on bonuses, 'Report to Quarterly Delegate Meeting 1.1.1906' in ibid., 1906, and leader in LTJ June 1906, pp.5-6. For employers' arguments on bonuses, see LUA Annual General Meeting 1904, LUA MC May 1904. A similar motion to raise the price of casual labour was rejected by LSC members in the autumn of 1905: MPA MC Sept. 1905. For a strike at Hazell, Watson, and Viney over the introduction of time clocks in 1905, see Alford, Letterpress Printing, p.71.

28 A. Evans to Daily News, 16.6.1906, quoted in LSC, 'Committee's Report on the Negotiations with the Master Printers' Association', 9.6.1906, p.12, LSC Trade Reports 1906. This document also contains an extensive account of the background to the dispute.

An LSC Special General Meeting therefore voted in June to present the London MPA with an ultimatum calling for a general strike of London compositors together with the other Federated printing unions for the 48 hour week if the Hampton's men were not immediately reinstated; the eight hour per week overtime limit which the employers had refused to discuss was likewise to be implemented on the spot. Upon receiving this ultimatum, the newspaper proprietors promptly withdrew from the MPA (which had all along denied any involvement) to form a separate negotiating body, the Newspaper Proprietors' Association. So great was their desire to avoid the disruption of a city-wide printing strike that they secured the settlement of the Hampton's dispute, reportedly by paying off the management to the tune of £6,000.[29]

Flushed with the collapse of the employers' front in the Hampton's dispute and agitated by the sharp downturn in trade after 1907, LSC militants pressed forward on all fronts. The movement to improve the position of the casual hands and to eliminate the remaining vestiges of piece-stab which had begun in 1905 gathered momentum, based as it was on longstanding union preoccupations. As an LSC circular argued in 1907:[30]

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29 LSC, 'Committee's Report on the Settlement of the Dispute with the Master Printers' Association', 2.16.1906, LSC Trade Reports 1906; MPA MC June 1906; Printers' Register June 1906; Howe and Waite, LSC, pp.316-17. In return for their mediation the newspaper proprietors secured an agreement from the LSC that it would negotiate separately with them in the future, and that it would enter into a conference with the London MPA over the new overtime limit. The machine operators within the LSC, interestingly enough, also began to feel the need to safeguard their special interests within the union shortly after this dispute, forming a 'Machine Compositors' Vigilance Association', LTJ Jan. 1908. An attempt to form a breakaway union of machine compositors failed in 1898, as it had in 1895-6; see LSC AR 1899, p.22, and above, pp. For other examples of conflicts between case and machine hands, see Printers' Register, May 1910, MPA MC May 1910.

30 T.E. Naylor, 'Committee's Report on Casual Labour and Piece-Stab', 4.6.1907, LSC Trade Reports 1907; cf. also the letter from an LSC member reprinted in MPA MC Sept. 1905.

> The position of those of our members who are numbered among the casually employed has long been a matter of serious concern to the trade at large. It appears to be inevitable, from the nature of our calling that a certain proportion of our members must be available at all times to meet the specific contingencies of the business as they arise. This fluctuation of work in the different seasons of the year results in the frequent displacement of a large number of men who are thus deprived of that continuity of employment which alone enables them to earn a living wage.

The LSC voted accordingly to increase the rate for casual work from 9d to 10d per hour, and to fix the minimum engagement for casual hands at two days, with the aim of cutting the practice to the minimum. To curtail the element of task work being imposed where piece-stab was still in operation, LSC stab hands were urged to write bills (i.e. submit a written account) only for the number of hours worked rather than for the number of lines composed.[31] The LSC's militant campaign once again led the master printers to concede ground: the union's proposals on casual labour were accepted by the MPA at the beginning of 1908, though union spokesmen later complained that many firms evaded the agreement.[32]

On the organisational front, the forward movement was reflected in the union's strenuous efforts to extend its control to non-society houses, not only within the London radius but also beyond. (The London radius was 15 miles from the GPO.) Though most of its attempts to colonise London houses were unsuccessful the society captured Spottiswoode's, a major holdout since 1836, through a revolt of the employees against the proprietors' wishes.[33] In June 1907, after

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31 'Report on Casual Labour and Piece-Stab'.

32 LSC, 'Casual Engagements', Trade Reports 1907; Naylor to Industrial Council, Enquiry into Industrial Agreements, Minutes of Evidence, q. 8392.

33 Printers' Register July 1908; on unsuccessful attempts to reopen Unwin's Eyre and Spottiswoode's, Ballantyne's, and Hanson and Company, see the organiser's reports in AR 1907, p.41; for the Globe and the Times, see ibid., 1908, p.54.

the breakdown of amalgamation negotiations with the TA precipitated by the decentralisation of London firms[34] the LSC unilaterally extended its radius to 40 miles from the GPO, establishing branches at St. Albans, Towbridge, Watford, Letchworth, and Dorking.[35]

The most important development within the LSC, however, was the growing commitment of its membership to the demand for the 48 hour week. In 1907, the National Printing and Kindred Trades Federation to which the LSC was affiliated invited the society to ballot its members on a joint movement for the 48 hour week; the LSC voted in favour by a margin of 7,512 to 533.[36] With unemployment at its highest levels since 1894 and concentrated among older members by the impact of composing machines, a Special Committee of the LSC reported in 1908 in favour of the 48 hour week as the basic solution to the overall problem. Hence when the NPKTF presented its memorial for the 48 hour week to the employers in May 1909, the LSC was solidly behind it.[37]

In some senses the demand for the 48 hour week was qualitatively new, supported as it was by arguments referring to the increasing importance of

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[34] See below, pp.300-1.

[35] Howe and Waite, LSC, p.274. The LSC had been trying to organise workers in provincial branches of London firms even before 1907: see Printers' Register, Feb.-Mar. 1906.

[36] LSC AR 1911, p.32; on the history of the NPKTF, see below, pp.293 ff.

[37] The Special Committee's report accepted the view that mechanisation might ultimately increase employment by increasing demand, and argued that composing machines were a contributing but not determining cause of increased unemployment. 'Report of SC on Unemployment', LSC Trade Reports, 1908. For other complaints about unemployment, see LTJ Jan-Mar. 1906.

commuting time and the intensification of work resulting from mechanisation; but at the same time, this demand flowed directly from the traditional strategies of craft regulation. This link between old and new in union strategies can be seen quite clearly in an article on labour-saving machinery in the London Typographical Journal:[38]

> What can the Trade Unions do to ward off the worst effects of this disturber of their peace? Fight the machine as did the Sheffield operatives of old? Cut the straps, withdraw the screws, clog the gears? No - a thousand noes; that way madness lies. For though master of our destiny today, tomorrow the machine will be the servant of all. Till that day arrives the Trade Unions must frame a policy of their own. First and foremost, the unions must safeguard every approach to the machine taking care that none but their own members shall have a hand in its manipulation. Selfish though the policy of exclusion may appear to be to our critics, it is the only means the Trade Unionists have of stemming the influx of cheap labour that usually coincides with the introduction of labour-saving machinery, and while consenting to cooperate with the employers, the unions must insist on their members being paid the maximum rate of wages possible under the new conditions. The users of the machine will never fail to reap a rich harvest; therefore, it is but fair that the operatives should receive a greater share of the increased product, especially when it is remembered that they will be called upon to help support the displaced men out of work.

In this quotation are crystallised all the ambiguities of the 48 hours movement from the perspective of the skilled compositor: an element of socialist rhetoric and analysis, coupled with forward looking demands, emerging from and reaffirming the traditional framework of craft regulation and exclusiveness in the face of mechanisation. As we shall see below, the struggle for the 48 hour week would become the focus not only of workers' resentments about the consequences of mechanisation, but of those of their employers as well.

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[38] Ibid., Jan. 1906, p.13.

Provinces

Although the focus of conflict over mechanisation shifted strongly to London in the decade after 1908, it should not be supposed that the provinces remained entirely quiet. In fact, despite the absence of any strikes over mechanisation as such, the TA's expenditure on strike and victimisation benefits averaged nearly 2,000 a year higher between 1899 and 1908 than during the turbulent period of the machines' introduction.[39] While the 1898 stab rate agreement had averted the threat of a clash between employers and the TA, and had provided a new framework for collective bargaining, the agreement itself was fraught with ambiguities and soon generated divergent interpretations.

The employers treated the 12½% advance case rates as a maximum, while the TA in turn naturally argued that it be treated as a minimum, with stronger branches entitled to keep the higher rates already in force. The members of the LUA therefore began to enforce wage cuts on the machines, and when the Oldham branch of the TA held out for its 40s rate, the employers threatened reprisals against the union. Despite much bitterness, the LUA position prevailed in practice, as machine operators recouped lost wages through increased overtime, and thus lost the benefit of shorter hours.[40]

A second important area of dispute arose over the relationship between machine and case rates. Here, the LUA maintained that the 12½% referred to

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[39] 1893-98, £449 per year, 1899-1908, £1,385 per year, derived from a table in Musson, TA, p.536.

[40] The 1898 agreement provided for higher rates of overtime pay only once normal case hours had been worked. TA Executive Council Minutes, 18.11.1899; LUA MC Jan.-Feb. 1899; TC Jan. 1899; Musson, TA, p.238. On overtime, see Report of RC 1899; LUA MC Dec. 1898; LUA Annual General Meeting reported in TC June 1899.

case rates existing in December 1898, while the TA insisted on automatic pro rata readjustments. The LUA rejected arbitration, so that a reversion to local bargaining soon threatened. While the TA Executive could not force the LUA to accept the principle of automatic readjustment, its position quickly prevailed as a result of a series of local collisions.[41] A third sticking point lay in the employers' demand that they be permitted to transfer machine operators to case at will, especially in jobbing houses where the nature of the work varied considerably. The TA sought to impose tight controls over this new version of the dual system, which had been rejected in London as prejudicial to the interests of the case hands; on this issues as well, the union's conviction of weakness led it to give way in practice.[42]

Under these circumstances, considerable rank and file discontent with the terms of the agreement naturally persisted. An upturn in trade in 1901-2 generated a host of local advance movements, many pressing with considerable success to recoup the 1898 machine wage cuts. Several branches, for example, contested the overtime provisions of the agreement, demanding that higher rates come into effect after 48 hours. Elsewhere demands were raised for a shorter working week, as in Bolton, Sheffield, and York; in the latter two towns joint movements for the 50 hour week coordinated through the local PKTF secured reductions to 53 and 52 hours respectively.[43] The London correspondent of the

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41 LUA MC May-June 1901, May 1902; TA Delegate Meeting Report 1903, p.25; Musson, TA, pp.238-39.

42 Operators transferred to case were guaranteed half a day's pay at the machine rate. LUA MC May 1901; TA, Report of Delegate Meeting 1903, pp.28-29; Musson, TA, p.239.

43 LUA MC Dec. and Feb. 1900; PKTF, Report of 13th Meeting, 31.8.1901, p.3.

Typographical Circular doubtless spoke for many compositors when he urged that employers' pressures for increased output be met by sending overzealous workmen to 'Coventry':[44]

> Employers are no longer satisfied with average results some try coercion, others coaxing, others bribing to get more, but so long as the master's and workman's interests are unidentical, the master may try to get as much, but the workman will try to give as little as he reasonably can.

Similarly, the union's Representative Council, motivated by traditional moral and economic arguments against piece work, met proposals from the employers for a national piece scale by calling fro the outright abolition of the practice.[45] On the apprenticeship question, where the employers were seeking an extension of the established 1:3 ratio for larger offices, the conference of Midland Branches in 1902 passed a resolution calling for the strict observance of the existing rule to minimise the displacement of hand labour; a motion from Nottingham to limit apprenticeship still further was rejected only because of a general conviction of weakness.[46]

Employers were no more satisfied than union members with the results of the agreement. The LUA continued to press for a machine piece scale, initially formulated as a uniform rate with modest cost of living increments for larger towns.[47] Equally important, however, was employers' discontent with the output of the machines and with the union's attitude to bonuses and measurement of output. Employers began to use slugs and inducators to measure output on stab, a practice which engendered sharp responses from opponents of 'task work' among the rank and file. Disputes broke out over these issues in 1899 at the Cardiff

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44 TC Dec. 1900.

45 TA, Report of RC 1901; cf. also a similar unsuccessful motion at the previous year's RC meeting.

46 TC Nov. 1902, pp. 4, 13.

47 TA, Report of Delegate Meeting 1903, p. 24; Musson, TA, p. 240.

Western Mail (run by Lascelles Carr, Chairman of the LUA) and at a large Leicester book firm; the latter was closed to TA members.[48] Under pressure from the employers, the union Executive agreed to permit output measurement, provided that the operator was not called upon to conduct the measurement itself nor the results used to impose a task work regime.[49] Nevertheless, the employers insisted that the union's attitude "...was undoubtedly intended as a means of restricting the output of the machines," and Pratt's accusations to this effect in the Times met with wide approval in employer circles.[50]

It was in this context that the Linotype Company stepped up its training programme in the provinces, predicting that[51]

> ...before a very long time has elapsed, there will be more difficulty in getting a really good jobbing hand than a linotype operator able to do his 6,000 ens an hour.

Similarly, a speaker at the LUA Annual General Meeting in 1901 won applause for his plea to newspaper proprietors to educate their readership for the inevitable confrontation with the unions:[52]

> There is no class of the community and no class of operatives more sensitive to criticism, I think, than the journeyman printer. Might we not use the power we have as newspaper proprietors, and occasionally give them, through the newspapers, some of that criticism which is about the least thing they desire. You will have to face this fact that bye and bye you will have to fight the operators. This will depend very largely at the time upon the public sentiment. Now we might do a great deal with regard to the future by educating public opinion, by informing the public of the methods adopted by the printers.

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48 MPA MC June 1899; LUA MC Apr. 1899.

49 TA EC Minutes, 2.12.1899, quoted in Musson, TA, pp.346-47; Report of RC 1900.

50 LUA Annual General Meeting, reported in TC June 1899; LUA MC May 1900; Diblee, 'Printing Trades'; MPA MC Jan.-Feb. 1902.

51 LUA MC May 1900.

52 Ibid., May 1901.

But despite the dissension in both camps, the TA Executive Council and its policy of moderate regulation remained firmly in control of the situation. While some speakers at the 1903 Delegate Meeting reiterated their opposition to piecework per se, the delegates voted the Executive plenary powers to conclude a machine piece agreement with the LUA, while reaffirming support for a tolerant line on linotype indicators. At the same time, the Representative Council, whose influence had been declining since its unsuccessful opposition to the 1898 machine stab agreement, was abolished, a step which marked a clear restoration of Executive control over union policy after the challenges from below sparked off in the 90s by the struggle over the linotype.[53] The EC itself was replaced by a 'District Executive Council', whose members were elected on a regional basis, but Manchester was still over-represented in the new structure, and this reform did little to ease the stranglehold of the General Secretary and his circle over union government.[54]

The linotype piece agreement concluded in October 1903 represented a clear victory for the Executive's strategy. The proposals of the LUA for a 'universal' piece rate were bypassed, as were attempts to abolish 'extras' and legitimate bonuses. Piece prices on the machines were set at one third of current case rates in each branch, with a minimum of 2d/1,000, 15% extra for night work, and a guarantee of 30 hours composition per week with standing time

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53 For a self-congratulatory speech by the General Secretary on the success of the EC's strategy regarding composing machines, see Report of RC 1900, p.13; and for a similar view, see 'Capital and Labour', TC Nov. 1900, where the far-seeing policies of the Executive are counterposed to the "hasty and ill-advised line of conduct" advocated by "some rabid enthusiasts".

54 TA, Report of Delegate Meeting 1903; Musson, TA, pp.146-47.

paid for at the machine stab rate.[55] This agreement did not in practice satisfy the employers' desires for higher output at lower rates, and few if any introduced piecework on these terms, so that stab became universal in the years that followed.[56] Consequently, employers turned their attention even more strongly to methods of increasing output on stab; as the President of the LUA told its Annual General Meeting in 1904.[57]

> ...We did not look for any satisfactory solution of the rate of remuneration for setting on the linotype machines until they had recognised what is known as the bonus system.

The next few years saw the TA confronted by mounting pressures from the newly established Federation of Master Printers (FMP)[58] for an extension of the apprenticeship scale and for a monotype agreement which would be more favourable to employers than those governing the linotype had proved. In these negotiations as in previous encounters with employers, the TA EC appears to have been guided by a pervasive conviction of organisational weakness - founded in part on its own reluctance to rely on independent rank and file initiatives - and was therefore prepared to make concessions rather than risk a full-scale confrontation. Certainly, the failure of the only major strike of the period, a five month attempt to win an advance in the stab rate in Hull in 1904, despite the cooperation of the local PKTF could only have reinforced this perspective.[59] Hence

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55 TC Nov. 1903; Musson, TA, pp.240-41.

56 President of the TA to TC Oct. 1897, quoted in Musson, TA, p.241.

57 LUA Annual General Meeting 1904 reported in TC June 1904; cf. also report of its Annual General Meeting 1905, reported in TC July 1905.

58 On the establishment of the FMP, see below, pp.298-300.

59 Printers' Register May 1905; MPA MC Sept. 1905; NPKTF AR 1904.

though feeling among sections of the membership ran strongly against any extension of the apprenticeship scale, the Executive was prepared to accept the position that changes in the scale of production required larger firms to be able to employ more apprentices; only disagreements with the employers over the exact change in ratios prevented the conclusion of an agreement.[60]

From the early years of the century, the monotype had begun to appear in large numbers in book houses in the provinces as in London. The TA accordingly found itself drawn into negotiations over scales for the machines from 1902, first with the Monotype Company and then with the FMP. Initially, the union sought to obtain similar conditions to those won on the linotype, but as in London the less vulnerable book firms held out for better terms, and negotiations collapsed over union demands for the 48 hour week and control over the casters. Here too, however, the TA Executive's consciousness of the union's precarious control of the labour market led it to accept the employers' terms, in contrast to the situation in London, where the superior bargaining position of the LSC together with its more open structure permitted militant members to force a more aggressive policy on the Executive and the employers. The monotype agreement concluded in August 1905 granted a 12½% increase over case rates on stab for a 52½ hour week (48 for night work), while the piece scale was fixed at 25% of existing case rates, with a 1½d/1,000 minimum and 15% extra for night work; piece hands were guaranteed 35 hours work with payment for standing time. More importantly, the union was unable to secure exclusive control over the keyboards and was forced to abandon temporarily its claims to the caster. On

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60 TA, Correspondence and Report on the Apprentice Question, submitted to 1908 Delegate Meeting; Musson, TA, p.215.

the whole, therefore, these agreements were much less favourable to compositors than the linotype ones had been, reflecting not only the superior bargaining position of the book firms, but also the greater experience and organisation of the employers.[61]

While the union's defeat in the Hull strike might have reaffirmed the prudence of conciliatory policies in the eyes of the Executive, the slump of 1906-8 nonetheless provoked a sharp recrudescence of rank and file resentments and fears over unemployment, bonuses, and output measurement. One writer in the Typographical Circular probably spoke for a substantial part of the membership when he lamented the tendency for national collective bargaining to remove "...individual response from the rank and file of trade unionism, leaving it contented in the belief that the best terms possible can be arranged by officials with the united employers...", a method which "...will have the effect of weakening the rank and file of trade unionism in a very serious way."[62] In any event, the columns of the Circular for those years abound with articles on unemployment and the urgency of a positive strategy; when the NPKTF called for a ballot in 1908 on the 48 hour week, TA members, like their London counterparts, supported the proposal by a large majority.[63] Similarly, complaints abounded over the diffusion of indicators on composing machines, variously denounced as "little better than espionage", "an attempt to sweat the workman of average ability", and a system of "slave-driving" which sought to secure piece work

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[61] Musson, TA, pp.241-46; for a critique of the agreement, see TC Apr. 1906.

[62] W. Wesson, 'The Federating of the Employers', TC May 1906, pp.1-3.

[63] TC May, Sept., Oct., Nov., 1906; Musson, TA, p.296.

effort at stab prices by "setting men against each other".[64]

In November 1907, the conference of Midland Branches, generally the most militant in the union, passed a vigorous resolution against the use of indicators on composing machines.[65] Throughout the Spring and early summer of 1908 a flood of resolutions from the branches to the upcoming Delegate Meeting poured in calling for an immediate campaign to secure the 48 hour week and for the abolition of the indicators. The Delegate Meeting itself was the scene of a veritable rank and file revolt. Delegates passed a militant resolution for the 48 hour week, while voting to limit overtime to eight hours per man per week and to increase its price. Indicators, bonuses, and task work were prohibited, as speakers denounced the devices in the most ferocious terms:[66]

> In the old days they used to use the lash upon slaves; in these modern times I suppose they would use an indicator.

The arbitration clause inserted in the rules in 1891 was likewise deleted as a further expression of the mood of the meeting. The results of the Delegate Meeting were not wholly at odds with Executive policy - the delegates rejected a motion to renegotiate the linotype agreements and agreed to to an extension of the apprentice scale - but the net effect was to strengthen dramatically the advocates of unilateral regulation and tight control within the union against the exponents of national collective bargaining and moderate regulation.

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64 See the quotations from the TC in Musson, TA, p.296.

65 TC Oct. 1907.

66 TA, Report of DM 1908, pp.31-32.

Unsurprisingly, the employers' associations were quick to protest against this resurgence of unilateral regulation, refusing to recognise any changes in working conditions arrived at without their consent.[67] The rules revision movement only confirmed the hardening attitudes of the provincial employers, which had already appeared in the negotiations over the monotype scale, in the demands for an extension of the apprentice scale, and in the growing tendency for non-unionists to be given preference as overseers in an attempt to tighten managerial control over the shopfloor.[68] Despite the efforts of the TA Executive to keep separate the questions of apprenticeship, rules revision, and shorter hours, all three strands of conflict became inextricably entangled with the emergence of the national campaign for the 48 hour week, as we shall see in the next section.

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67 MPA MC June 1909; Musson, TA, pp. 164-66.

68 Pratt, Trade Unionism; Diblee, 'Printing Trades', resolutions against the employment of union foremen were passed at the Annual General Meetings of the LUA and the FMP in 1907 and 1908 respectively: TC June 1907; MPA MC June 1908. For resentments over the appointment of an outside foreman at one Fleet Street printing works, see Jackson, Solo Trumpet, pp.30-32.

## Federation, the Movement for a Shorter Working Week, and the 1911 Fifty Hours Strike in London

Before embarking on an account of the events leading up to the 1911 strike for the 50 hour week in London, it will be necessary to sketch in the evolution of the expanded forms of cooperation among both printing unions and employers, together with the conflicts between the LSC and the TA, which would play such a crucial role in its denouement.

A federation of printing unions, whether on a metropolitan or a national basis, had been mooted seriously since the mid-1880s, but a series of schemes had foundered on the rocky issues of the constitution of its executive, the basis of its finances, and the terms of collaboration in disputes. Thus in 1885, the LSC launched a scheme for a metropolitan printing and paper trades federation, which elicited widespread support from other unions but was ultimately rejected by the Society's own membership mainly because it provided for equal representation on its executive of the smaller craft societies and the more numerous LSC.[69] A national Printing and Kindred Trades Federation (PKTF) was formed in 1890 as the result of an initiative by James Kelley of the Lithographers; it sought to secure uniform working conditions throughout the country and to coordinate relations with employers; no independent fund was established and other unions were only to be asked to intervene in disputes if blacklegs were called in. The LSC and the London-based Printing Machine Managers Trade Society (PMMTS) attended its initial conferences, but ultimately declined

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69 'Notice of a Special General Meeting to Consider the Report of the Delegates Appointed to Devise a Scheme for the Federation of the Metropolitan Printing and Paper Trades, 27.11.1886, LSC Trade Reports, 1886; LSC AR 1886; F. Willis, 'Federation of the London Printing Trades', Printing News, June 1894, p.4.

to participate, so that the Federation survived on a purely provincial basis.[70]

In 1894 a renewed attempt was made to form a metropolitan federation, this time under the auspices of Alf Evans, leader of the Warehousemen and Cutters, one of the new unions of less skilled printing workers organised in 1889; the influence of the new unionism was evident in its objects, which included joint movements for the 48 hour week and against the employment of non-unionists, and in its organisational structure, which called for the establishment of an independent strike fund based on contributions from each affiliated union of 3d per member per quarter.[71] The LSC had from their inception enjoyed extremely cordial relations with the new unions, which were established with the assistance of socialist compositors and with financial contributions from the union itself,[72]

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70 'Report to Adjourned Quarterly Delegate Meeting 12.11.1890', LSC Trade Reports 1890; PKTF, 'Objects and Rules' in Report of the Second Meeting of the PKTF, 20-21.4.1891; 'Interview with D.D. Leahy of the PMMTS' in Printing News Sept. 1892, p.9; Child, Industrial Relations, pp.194-95; Musson, TA, pp.285-89.

71 '48 Hour Week and Federation' 25.5.1894, LSC Trade Reports 1894.

72 The Printers' Labourers Unions was formed in 1889 as a result of a strike organised by two compositors who were also members of the SDF; one of these, G. Evans, became its first secretary. The LSC supported the new union with weekly collections in its chapels, and the PLU, together with the Warehousemen and Cutters, another new union founded at the same time with the assistance of LSC members including Harry Hobart, took over the Compositors' old premises in 1892. The PLU, renamed the National Society of Printers' Assistants (NSOPA in 1899, maintained especially close links with the LSC through its Secretary C.W. Bowerman, who received the union's support as a parliamentary candidate from 1903 onwards, was invited to open the new NSOPA headquarters in 1906 and became an honorary member of the union in 1917. R.B. Suthers, The Story of NATSOPA, 1889-1929 (1930), pp.11-12, 16, 24; Moran, NATSOPA, pp.11-15 18; Bundock, National Union of Printing, Bookbinding and Paper Workers, p.112; Child, Industrial Relations, p.185. For detailed information on the role of socialist compositors in the formation of the PLU and the Warehousemen and Cutters, see Vigilance Gazette Feb. 1890; Justice, 31.8, 7.9, 14.9, 21.9, 2.11, and 9.11, 1889; The Commonweal 7.9.1889; and The People's Press 21.6.189 I am grateful to Robert Baldwin for supplying these references to articles in the socialist press.

in contrast to the PMMTS, whose members faced competition from unskilled press hands for the top jobs in the machine rooms.[73] Nevertheless, the Compositors were not yet prepared to collaborate on an equal basis with these unions in a Federation, and the LSC Executive successfully urged its members to hold aloof from the proposed Federation because of its provisions for equal representation for large and small unions and because of the absence from its ranks of certain other craft societies.[74]

The growing enthusiasm for Federation in London was intimately bound up with the expanding support for militant trade policies and socialist ideas within the LSC, as well as with a growing sense of vulnerability kindled in part by the conflicts over mechanisation. Thus an editorial in favour of Federation in Printing News in 1892 emphasised the importance of the growing

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[73] The PMMTS initially contributed to the PLU strike fund, though its Secretary commented in 1892 that despite the assistance of the union, "I would like to see more friendliness displayed by the machine minders." 'Interview with T. O'Grady', Printing News, Nov. 1892, p.9. With the growing diffusion of the rotary press, relations between the machine minders and the semi-skilled machine hands who were often promoted to machine minding posts, especially in the provinces, cooled markedly. NSOPA changed its name to the National Society of Printers and Assistants (NATSOPA) in 1912 in response to demands by the PMMTS and the TA that it force its members either to refuse promotion to skilled jobs or surrender them to the craft unions. By 1914 matters had gone so far the PMMTS, the STA, and the Stereotypers and Electrotypers formed a 'triple alliance' against the 'usurpation' by members of NATSOPA "of the positions hitherto held or in any work or section of work constituted for apprentices and skilled craftsmen." Suthers, NATSOPA, pp.39, 45; Moran, NATSOPA, pp.17, 19, 23-24, 53, 55, and ch.6; Isaacs, Printing Press, pp.59-60; Child, Industrial Relations, pp.111-12, 192-93; Musson, TA, pp.249-63. See also above, pp.34-5.

[74] See the arguments by A.E. Holmes in favour of the LSC's joining the Federation and those of Bowerman against in '48 Hour Week and Federation'.

interdependence of production for compositors' bargaining position in case of strikes, a theme which would find repeated echoes in union discourse during succeeding decades:[75]

> In the case of the compositors' leaving work, the employer can, without much difficulty, supply their places with more or less incompetent material; but when the matter affects the machine room, they hesitate to entrust expensive machines to the care of loafers who haunt the fringes of a strike, or suddenly appear from parts unknown when trouble is on, like vultures scenting offal. The average employer who pays from £200 to £2,000 for a machine, is not over anxious to entrust it to the care of these 'minders' and would much rather make terms than run any risks.

The emphasis in this appeal is clearly on the necessity for Federation between the LSC and the other craft societies, rather than one embracing all the printing unions, and such was also the perspective of the union's Executive, which opened negotiations for this purpose with the TA and PMMTS in 1895.[76]

The growing membership and financial stability of the new unions combined with the ominous example of the engineering lockout to undermine the LSC's exclusive attitudes, and it joined a reorganised metropolitan Printing and Kindred Trades Federation in 1897. The new structure embodied a compromise between equal and proportional representation of the affiliated unions, with the Executive elected by delegates assigned on the basis of one for every 500 members up to a maximum of ten; the Federation could not raise money beyond that necessary to cover the costs of its administration; and the potential for joint involvement in disputes was carefully regulated by its Executive, in deference to the LSC's reservations.[77] The new unions of the less skilled were quick to

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75 Printing News, Oct. 1892, p.8; cf. LTJ Jan. 1906.

76 Bowerman in '48 Hour Week and Federation', p.11; Willis, 'Federation of the London Printing Trades', Printing News June 1894.

77 LSC AR 1897, p.20.

take advantage of the added bargaining power afforded by the alliance with the LSC and the other London craft unions. A Federated 'Fair Houses' list was established to promote the employment of union members in the non-craft departments of printing houses, and the influence of the PKTF proved critical in securing recognition from the London Master Printers' Association for NSOPA in 1901.[78]

In the provinces, meanwhile, the establishment of the PKTF had led to the formation of local Federations which served as the framework for advance movements, often aimed at securing shorter hours, in which the TA played an important role. These enjoyed a not inconsiderable success, particularly in Sheffield and York, where Federated movements won small reductions in the working week.[79] By the end of the 90s the provincial Federation, under the impetus of the TA, had agreed to convert to a financial basis by forming an independent strike fund.[80] Once the London Federation had been established on a firm basis, negotiations were quickly set in train for a fusion with the older provincial organisation. A conference in December 1900 of the London and Provincial Federations agreed to amalgamate and thereby establish a National Printing and Kindred Trades Federation (NPKTF). The new body was supported by 13 unions with a total membership of 43,000, including the 3 typographical unions, most of the other craft societies, and new unions such as NSOPA and the Warehousemen and Cutters; unlike its predecessors, the NPKTF involved a common

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78 Ibid., 1900, p.31; Moran, NATSOPA, p.31.

79 See above, p. 284 ; Child, Industrial Relations, p.196.

80 Musson, TA, pp.290-92; for the TA's support for a national Federation with high subscriptions, see Report of Delegate Meeting 1898, pp.11-12, 20-27.

strike fund, based on contributions of 1s per member per annum in order to finance strike benefits of 10s per week, scaled down from the original proposals to meet the reservations of the London craft societies. The Administrative Council of the new Federation was a modified version of the compromise which had been adopted in London: each affiliated society of 5,000 members or less was entitled to one representative, with another for every additional 5,000 members up to a maximum of three. Before any union took steps which might provoke a dispute which would involve the Federation, its Administrative Council had to be consulted, and Federated disputes once underway could only be concluded by the Executive itself. At this conference, too, the crucial motion for expanded union cooperation had been proposed by the Warehousemen, though the limited gains achieved by the LSC in the 1900-1 advance movement, coupled with the increasing organisation of the employers, doubtless spurred on the Federation process.[81]

These steps towards broader cooperation among the printing unions were paralleled by the evolution of organisation among their employers. The London MPA had been reestablished in 1890 as a result of the LSC's demand for a revision of its Scale of Prices, and a Linotype Users' Association (composed chiefly of provincial newspaper owners) had been formed in 1894 to negotiate with the TA over the introduction of composing machines. The emergence of local branches of the PKTF demanding reductions of hours in the late 90s provoked the

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81 Reports of the 11th, 12th, and 13th Meetings of the PKTF, 1899-1901; Conference of the Provincial and London Federations re Amalgamation, 13.12.19C LSC ARs 1899-1901; rules of the NPKTF in ibid., 1901; Musson, TA, pp.292-93. A compositor writing in the SDF paper Justice in 1900 argued that the failure of the LSC to secure the 48 hour week had demonstrated the obsolescence of 'sectional strikes' and the need for Federation, a theme which would be taken up more widely in 1911. Article reprinted in MPA MC Jan. 1900; cf. Daily Herald 4.2, 13.2, and 21.2, 1911.

formation of local Master Printers' Associations in Birmingham, Yorkshire, Leeds, Bolton, Reading, and Leicester, and 36 such bodies had been established by 1901.[82] While plans for a Northern-based Federation of Master Printers were encouraged by the London MPA in the mid-90s, the first serious initiative for a national Federation was launched in 1897 by the Glasgow and West of Scotland Lithographers' Association, and a meeting was convened in Leeds the same year under the joint sponsorship of the Glasgow and Yorkshire MPAs.[83] The movement towards the creation of the NPKTF and the establishment of a common strike fund galvanised the employers into forming their own organisation in 1901. While the founders of the new Federation of Master Printers (FMP) were careful to declare that "...the Federation is not intended as an instrument to injure Trade Unions...." and included among their aims the elimination of "unhealthy competition" through the diffusion of modern cost-accounting methods, they nonetheless observed that the "abuse" of trade union power had made it "... essential that there should be Associations of Employers to meet the employees on equal terms":[84]

> ...It is well known that the old proverb 'Union is strength' applies with great force to labour questions, and that the existence of a powerful organisation on the side of the employers will tend to that calm consideration of any question at issue, which is so necessary to maintain harmony between the employers and employed of any trade....

Accordingly, the FMP's rules dictated that "no step of general importance to the printing trade as a whole shall be taken by any Federated association or

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82 MPA MC Feb. 1897, Nov. 1899; Child, Industrial Relations, p.201.

83 Souvenir of the 5th Annual Meeting of the FMP and Allied Trades of the UK, May 1905, pp.16-17.

84 MPA MC Apr.-May 1901, pp.48-51, June 1901, pp.61-64; Sessions, FMP, pp.40-52; Child, Industrial Relations, pp.161-62, 199-201.

inidividual member, without previous consultation with the council", and urged that no union "working rules" be recognised without its consent.[85]

While collaboration among printing unions nationally was developing through the activities of the NPKTF, relations between the TA and the LSC were becoming increasingly strained. At issue here was principally the problems created by the establishment of branches by London book houses just outside the metropolitan limits, a process which had accelerated after the 1901 arbitration award.[86] This development was sharply reflected in the two unions' relative growth rates: in 1891 the LSC had 9,350 members to the TA's 10,836; by 1908 they stood at 12,202 and 20,254 respectively.[88] Both the LSC and the London-based PMMTS felt they could organise workers in the metropolitan fringe more effectively than the TA, and pressed accordingly for the extension of the London radius from 15 to 30 miles from the General Post Office. A series of abortive conferences with the TA ensued between 1903 and 1906, with the latter union presenting counter-charges of ill-treatment of its members seeking work in London. Matters were brought to a head by the establishment by Wyman's of a new Reading branch employing non-unionists, boys and girls at substandard rates. In the face of TA inaction, the Wyman's compositors organised an independent union and applied to the NPKTF for recognition under LSC protection. As a result of the ensuing fracas the LSC unilaterally extended its radius to 40 miles, setting up a number of provincial branches; the TA, then formed its own London branch in retaliation.[88]

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85 E. Howe, The British Federation of Master Printers (1950); Musson, TA, pp.162-64; Clegg, Fox, and Thompson, Trade Unions, pp.345-46.

86 See above, pp.271-72.

87 Tables in Musson, TA, p.535; Howe and Waite, LSC, pp.338-39.

88 Special Conference of the NPKTF, 3-4.7.1907; 'The London Radius Question', TC July 1907, pp.7-8; Musson, TA, pp.271-76.

As a result of mediation by the Parliamentary Committee of the TUC, amalgamation proposals were considered in 1908 by the TA, LSC, STA, and PMMTS. Though ballots of all four societies' members were favourable to the formation of a single typographical union with centrally administered benefits, an impassable deadlock was reached over the LSC's insistence that it retain local control over trade policy, including strike decisions. The outcome of these negotiations demonstrated that as in 1848, when the first attempt at a national typographical association had collapsed, the most important divisions among skilled printers were still the regional variations in bargaining power, trade policy, and internal politics.[89]

While the level of Federation contributions and strike benefits was raised in 1904 and local PKTF branches continued to grow in number and influence, during the early years of the century the efforts of the NPKTF Executive found their efforts to affect the conduct of negotiations with employers and major strike decisions frustrated by the fact that real power continued to rest with the individual unions, whose leaders retained the right to decide for example which of their members should receive Federation strike benefits.[90] It was the movement for the shorter working week which drew the Federation into a wider role in collective bargaining. From its inception, the idea of Federation had been closely bound up with that of reductions in working hours, particularly in London where NSOPA and the Warehousemen and Cutters had served as its leading advocates. Such movements were of greater significance for these new unions of the less skilled which were both more deeply influenced by socialist ideas and more dependent for their organisational growth on recognition from employers and

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89 Ibid., pp.276-79.

90 Ibid., pp.293-96; Child, Industrial Relations, pp.195-97.

the achievement of minimum conditions through collective bargaining than were the craft societies which could still enforce their work rules to a significant extent in each office. Thus within the NPKTF it was the leaders of the unskilled and semi-skilled unions who were the first to propose a joint movement to secure the 48 hour week. At the annual meeting of the NPKTF in 1904 Evans of the Warehousemen and Cutters moved a resolution for the eight hour day, and in 1906 Smith of NSOPA introduced a similar call for the 48 hour week.[91]

In 1907 the Federation Executive approached the leaders of the member unions on the possibility of a joint movement for the 48 hours; 11 societies reported favourably, four on the basis of ballots, although the TA Executive Council characteristically expressed scepticism about its ability to fight such a campaign in its weaker branches.[92] Ballots of the Federated unions in 1908 showed a clear majority in favour of the proposal; the LSC voted to press the demand for the 48 hours on its own if the Federation failed to take it up.[93] In May 1909, following the ballot of the members of its constituent unions, the NPKTF presented a memorial to the employers demanding the 48 hour week, a step which provoked the TA Executive Council to express once again its reluctance to support direct action.[94] After an initial refusal to consider the question, the FMP conferred with the NPKTF in July, and again the following February, without reaching any agreement.[95]

Already at this stage a marked contrast was emerging between the caution of the provincial unions led by the TA, and the more militant line put forward by the London Federation under the auspices of the LSC. While this gap was in

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91 NPKTF ARs 1904, 1906.

92 Ibid., 1907, p.7.

93 LSC AR 1911, p.32.

94 NPKTF AR 1909, p.6.

95 LSC AR 1911, p.32; MPA MC June 1909; NPKTF AR 1909.

part a product of the weaker bargaining position and less participatory political style of the TA, it was also the result of its recent conflicts with the LSC over recruitment and amalgamation, as well as of earlier resentments of LSC decisions first to hold aloof from Federation with the provincial unions and then to insist on a lower rate of contributions to the common strike fund. At the same time, the LSC's relations with the less skilled unions in the London PKTF was being cemented by the latter's assistance in the victories in the dispute over female monotype operators at Straker's in 1905 and in the 1906 Hampton's dispute.[96] Thus during the Straker's dispute, the Warehousemen and Cutters' leader had commented proudly:[97]

> For the first time on record we had the printing trade unions welded together as one body, the Compositors, Lithographic and Letterpress Machine Minders, Vellum Binders, Machine Rulers, Warehousemen, Cutters, Printers' Assistants, Platen Machine Minders, and Stone Preparers all fighting for one cause.

The contrasting attitudes of the LSC and the TA towards militant industrial action were likewise signalled by their reactions to the FMP's proposal in 1909 to establish a 'Board of Conciliation' for the printing trades, whose crucial feature was that no strike or lockout would take place until the matter under dispute was referred to the Board; any innovation by either side which might precipitate a stoppage of work was to be suspended until after its ruling. The TA, together with some of the other national unions, was prepared to accept this scheme, while the LSC declined, citing the advantages of more aggressive tactics for a London-based union like itself:[98]

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96 See above, pp.277-79.

97 Quoted in Bundock, National Union of Printing, Bookbinding and Paper Workers, pp.143-44.

98 'Conciliation Board for the Printing Trades', 24.8.1909, LSC Trade Reports 1909; NPKTF, Conciliation Board for the Printing Trades, (n.d. 1909?); Howe and Waite, LSC, p.22; Musson, TA, p.295; Child Industrial Relations, p.214; Clegg, Fox, and Thompson, Trade Unions, p.438.

> The LSC differs from the other societies in being centralised, whereas they are spread over the entire country; and it is conceivable that circumstance puts us in a specially favourable position for enforcing our demands and insisting upon our decisions being carried out. It is true that we have lost houses through strikes and lockouts; but such losses are still possible under the scheme of arbitration. And it is impossible to say how many houses we have gained, or retained in the face of serious differences, through the fact that we had the power to strike immediately the Committee deemed it necessary to resort to our chief weapon of defence.

Meanwhile, the TA and the employers had become embroiled in negotiations over the 1908 rules revision and the extension of the apprenticeship scale. The LUA in particular took strong exception to the ban on indicators; as its President told the union in 1909:[99]

> The principle involved in this is that you are seeking to step into our offices and declare what shall be the mechanical arrangements by which we shall produce some of our work. We hold that you have no right to decide that there shall be a wheel less or an attachment less on the machine that does not involve your membership in any additional labour, and which does not concern him beyond the fact that we are getting an approximate knowledge of the machine....

Four conferences ensued during 1909 between the TA on the one hand and the LUA, and the Northern and Southern Newspaper Owners' Federations on the other in a futile attempt to resolve the issues of the new union rules on indicators and overtime; three conferences with the FMP during the same year on the apprentice question proved equally abortive.[100] Hence with pressure building up from the branches, the TA Executive elected to implement the new rules unilaterally from May 1910. Similarly in London, rank and file discontent with stalled negotiation produced militant action: an LSC Delegate Meeting, dissatisfied with the eight hour per week overtime limit, voted to increase its price by a substantial margin in order to expand employment.[101]

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99 Printers' Register, July 1909; ibid., June 1909.

100 Musson, TA, pp.165, 215.

101 LSC Trade Reports 1909.

The TA's decision to implement the new rules unilaterally galvanised the employers into a rapid response, overcoming their traditional fragmentation. Representatives from the FMP, the LUA, the Northern and Southern Newspaper Owners' Federations, and the Irish Newspaper Society met in September, agreeing to oppose jointly any attempt by the union to implement its rules pending further negotiations. As the statement issued by the conference warned:[102]

> Many associations have declared in favour of united action, even to the extent of a lockout in support of any district where attempts may be made to force the adoption of the rules without modification, and even those who have the largest interests at stake, and from the nature of their business would suffer most severely in the event of a stoppage of work, are gravely considering whether a general lockout would not be a lesser evil than submission to the dictates of the TA.

In May 1910, a year after the presentation of its original memorial, the Administrative Council of the NPKTF agreed to reorganise the movement for the shorter working week into two stages: 50 hours, to begin on 1 January 1911, and 48, to begin the following year. The membership of the affiliated unions was to be balloted on the presentation of strike notices on 1 January should the employers refuse to concede the 50 hours. In October, the LSC balloted its members, who resolved by a substantial majority not only to support the Federated movement, but also to pursue independent strike action if the employers refused the demand in January. At a Special Delegate Meeting on November 16, the LSC instructed its representatives to press the Federation Executive to insist that the whole of the memorial - i.e. the 48 hours in 1912 as well as the 50 hours in 1911 - be conceded by the employers as part of any settlement. The total ballots of members of the Federation showed a majority of 32,586 to 14,866 in favour of proceeding with the terms of the memorial, but at the meeting of the Administrati Council, the provincial delegates forced through a motion demanding a further conference before any strike notices were tendered.[103]

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[102] MPA MC Sept. 1910. My emphasis.

[103] LSC AR 1911, pp.33-34.

On December 7, the London MPA organised a meeting to oppose the Federation's demands. Arguing that shorter hours would add 15-20% to composition costs, representatives of over 400 firms voted "to resist the demand to the utmost, and accept the notices from the men should they be tendered." The London MPA further instructed its representatives to fight on against any hours reductions should the FMP agree to meet the unions in conference. Meanwhile, the FMP held out the offer of a conference, but only to be held on 10 January, i.e. after the strike notices were to have been tendered. In the face of these tactics, the gap between provincial delegates wishing to suspend the notices entirely and Londoners pressing for more resolute action widened considerably; a compromise was reached committing the federated unions to tender notices on February 4 if no agreement was reached.[104] In preparation for the possible confrontation, the London unions held a mass meeting in the Albert Hall on New Year's Eve, attended by 7-8,000 printing workers - skilled and unskilled alike - who reaffirmed their support for the movement. Similar gatherings were held throughout the provinces during the last week of December and the first week of January, but the TA Executive Council became convinced that the strike movement was fundamentally a London-centred venture from which the provincial unions should hold aloof.[105]

In explaining the more cautious attitude of the provincial unions, especially the TA, towards the 48 hours movement, it is necessary to emphasise not only their weaker bargaining position and less participatory political style, but also the different constellations of employer opposition they faced. In London, the

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104 Ibid.; NPKTF AR 1911; MPA MC Nov.-Dec. 1910; TA Executive Council Minutes 17.12.1910.

105 LSC AR 1911, p.35; BCPS 5.1.1911; Newspaper Owner, 7.1.1911; MPA MC Dec. 1911. TA Executive Council Minutes 17.12.1910, 8.1.1911; TC Feb. 1911.

newspaper publishers, having already conceded the 48 hour week and withdrawn from the LMPA, held aloof from the employers' resistance movement, whereas in the provinces, the TA faced the possibility of a complete national lockout embracing book and newspaper firms alike as a result of the disputes over rules revision and apprenticeship.

The January 10 conference with the employers merely confirmed the deadlock. The FMP offered a reduction of half an hour to 52 hours, arguing that the benefits of mechanisation had been eaten up by increased competition, and that the movement of work out of London in particular made any substantial addition to labour costs unacceptable. The Federation representatives, led by the LSC, argued that the linotype had meant a saving of 25-30% in production time, while mechanisation had displaced labour and intensified work.[106] The following day the London MPA issued a statement regretting the offer of the half-hour reduction made by the FMP, while the TA Executive Council met with the FMP in a last minute attempt to resolve the rules question. At the meeting of the NPKTF Administrative Council on the 13th, the provincial delegates expressed their unwillingness to tender notices on February 4th, arguing instead for another attempt at negotiation. At this point, the London strike committee, led by the LSC, elected to pursue the demand on its own. Their action was endorsed by a Special Delegate Meeting of the LSC on the 18th and the London Printing Trades Committee was formed in association with the Warehousemen and Cutters; most of the other London unions joined the following week. On the 21st, the Committee concluded an agreement with 16 friendly firms - known as the 'Compromise Committee' - securing the 50 hour week for the next five years,

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106 Verbatim Report of a Conference Between the NPKTF and the FMP, 10.1.1911, Webb Coll. EB LXXIX, f.9.

while notices were tendered to the rest of the employers.[107] A strike paper, the Daily Herald, was then established to build public support, quickly reaching a circulation of over 20,000. Following a final abortive conference on the 25th several large book houses locked out their union employees, and despite a last minute intervention by Askwith and Buxton of the Board of Trade, who induced the FMP to offer a compromise of 51 hours (without being able to guarantee that it would be respected by those firms which had already paid off their union men), the strike began on 4 February.

Within the first week, some 350 printing offices had conceded the 50 hour week. The final number of concessions was put at somewhere over 500, the bulk of which surrendered quite early in the strike. The dispute rapidly settled into a contest between the London printing unions led by the LSC and somewhat more than 100 firms (many of them quite small) gathered round the half-dozen largest book firms which had announced their intention of permanently converting to a non-union basis; the MPA Secretary claimed that these large firms alone employed more than 8,000 men; these were also the leading firms with country branches, such as Spottiswoodes at Colchester, Waterlow at Dunstable, Hazell Watson and Viney at Aylesbury.[108]

Both sides stated quite clearly that the issue was not merely the 50 hour week but the future of craft regulation in the industry together with the accumulated grievances over the methods and consequences of the introduction

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107 Naylor to Industrial Council, Enquiry into Industrial Agreements, Minutes of Evidence, qs. 8378, 8411; LSC AR 1911, p.38.

108 Union estimates in LSC AR 1911, p.40; Daily Herald, 6.2.1911; MPA Secretary quoted in ibid. For the employers, see MPA MC Feb. 1911; Printers' Register Feb. 1911; Newspaper Owner 18.2.1911.

of composing machines. Lake, the Secretary of the London MPA, announced early in February that the dispute had come to centre on the question of the open house:[109]

> We have been forced into our present attitude by the irksome restrictions of the men's unions. Particularly undignified is the position we have been obliged to adopt in relation to overtime. In cases of emergency even, we are obliged to ring the compositors' secretary in order to secure permission for the men to work half an hour beyond the maximum allowed for one week.

Similarly, an article by the previous Secretary of the MPA attributed the strike to the LSC's transgression of the "legitimate functions of trade unionism":[110]

> It is altogether illusory to suppose that the antagonism of the masters is the result of the demand for a less number of working hours - the present crisis has been precipitated by the continually growing spirit of dictation on the part of the men's representatives as to how the masters shall carry on their business, even to the minutest details.

Another master printer traced the origins of confrontation to "four acts of war" perpetrated by the LSC: 1) the 1906 Hamptons dispute; 2) the "arbitrary" overtime limit: 3) the serving of notices the previous year to secure the 48 hour week for readers; and 4) the serving of notices in the present dispute before the conclusion of negotiations.[111]

On the workers' side, proponents of the 48 hour week had always stressed the need to relieve unemployment generated by mechanisation, and this theme was reiterated during the conferences with the employers. As C.W. Bowerman, the former General Secretary of the LSC, put it:[112]

> It is not surprising that with the introduction of new machines men should be thrown idle. That may be rectified in time. The linotype has created trade, but it took time to do that. Meanwhile men are thrown idle in large numbers, or are only casually employed, and that is what we are suffering from in London.

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109 Quoted in Daily Herald 6.2.1911.

110 Newspaper Owner 11.3.1911.

111 BCPS, 13.4.1911, pp.2-5; cf. also the testimony of Straker and Unwin to Fair Wages Committee, quoted above, pp.

112 Report of Conference 10.1.1911, p.26.

Another aspect of the agitation for the shorter working week related to mechanisation lay in the growing volume of complaints about the increased scale of production, tighter supervision, and the intensified pace of work. Already in 1900 the STA Annual Report had referred to new forms of work organisation as a[113]

> ...Juggernaut car in the hands of the high priests of trade...the earth's feeble toilers must become its votaries and submit their souls to be warped and their bodies crushed in the sacred cause of this fetish which is dignified with the name of Progress.

Now a compositor identified as "the chief cause of the present unrest in the printing trades":[114]

> ...Machinery and the soullessness thereof. By machinery I mean chiefly the 'modern business methods' and the 'organisation' fads with which we are confronted, and by which we are harrassed at every turn, until the burden and restraint have become almost unbearable.... Some ingenious person devised the syndicate, whose proud boast it is that it is non-moral, impersonal, machine-like, automatic; and now we are being machined in every possible way, until we have almost reached the limits of dehumanisation.

Similarly, the Daily Herald featured articles during the strike entitled 'Man V. Machine' and 'Speeding up'; the latter spoke of[115]

> ...the tightening up in the factory and workshop.... We have become part of a huge machine, beginning the day's work by registering our time in the automatic 'clock'.

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[113] Quoted in Gray, Labour Aristocracy, p.108.

[114] 'From the Wage Earner's Point of View', Newspaper Owner, 22.10.1910.

[115] Daily Herald, 14.1.1911, p.3; 13.2. 1911, p.2; cf. ibid., 17.3.1911.

During the first month of the dispute, the momentum generally ran in favour of the strikers. Many firms conceding the 50 hour week withdrew from the MPA, which found itself forced to issue a general appeal for funds by the 8th of February.[116] There was also a tendency for the strike to be extended to provincial branches of London firms, such as those of Spottiswoodes at Colchester and Billings and Sons at Guildford.[117] In mid-February the Lithographers joined the Electrotypers and Stereotypers among the highly skilled new printing crafts supporting the strike; partially as a result, two large anti-union firms, Goodalls and Hazell, Watson, and Viney surrendered.[11]

As the strike wore on, a series of major book and jobbing firms were forced to concede the 50 hours: Clowes, the largest jobbing firm in the city; Wyman and Sons; Harrisons; Ballantynes; Eyre and Spottiswoode; and that pioneer of the cheap novel and penny periodical, George Newnes, all figured among those firms surrendering between April and November 1911, as did such important medium-sized houses as Straker Bros., Straker and Sons, Odhams, and Wightmans. But a number of important firms remained steadfast in their resistance, including Harmsworth, Spottiswoodes, Waterlow Bros. and Layton, Waterlow and Sons, and Sir Joseph Causton and Sons, and a general stalemate was emerging.[119]

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116 LSC AR 1911, p.41; MPA MC Feb. 1911.

117 Daily Herald 31.1. and 15.2, 1911; Printers' Register, Feb. 1911.

118 Daily Herald, 13.2, 21.2, 14.3.1911; Printers' Register, Jan. 1912, 'Retrospect of 1911'.

119 LSC, Compositors' Guides to Fair Houses, Nov. 1910, Apr. 1911, Nov. 1911; See also Table 8.

The large anti-union houses were able to sustain operations, in part through the use of blacklegs supplied by the National Free Labour Association, while in April the London MPA reorganised itself into three sections - non-union houses, union houses, and lithographers - thereby avoiding disintegration.[120] Fortified by contributions from their well-paid comrades still at work in the newspaper office, the strikers held firm throughout the spring, actively picketing the holdout houses, but to little effect. Finally, under pressure of mounting expenses the strike committee withdrew its pickets in July, though there is no evidence of strikers deserting their unions to return to their former employers.[121]

At its height in February, the strike displaced some 1,422 LSC members; 700-900 remained unemployed in July (of whom 600 were still unemployed in December and 250 the following July, adding to the 800 or so signing the call book before the strike began.[122] The total cost of the strike in increased provident benefits, strike pay, and other expenses amounted to more than £77,000 for the LSC alone, of which £15,000 was contributed by the NPKTF and the General Federation of Trade Unions.[123]

Both sides claimed victory. The LMPA noted the high cost of the strike, to the unions and the loss of 115 houses from the LSC's fair list, together with the creation of a reservoir of non-union labour, so that[124]

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120 Daily Herald, 13.2, 21.2, 14.3.1911; LSC AR 1911, p.41; MPA MC Apr. 1911; Printers' Register, Apr., June 1911.

121 LSC AR 1911, p.43; Printers' Register July, Aug., 1911 and Jan. 1912; MPA MC Aug. 1911.

122 LSC Quarterly Delegate Meeting 28.6.1911 reported in Printers' Register July 1911; LSC AR 1911, p.43; Naylor to Industrial Council, Enquiry into Industria Agreements, Minutes of Evidence, q. 8487.

123 LSC AR 1911, pp.44-49.

124 MPA MC June 1911; cf. also Printers' Register, July 1911, Jan. 1912.

> ...if unreasonable demands were put forward in the future to a house that house now had a very large number of non-union houses to which it could turn for help.

A widely quoted speech at a meeting of the unions' United Pickets' Committee in June seemed to support this view, though it should be remembered that the speaker was arguing for the continuation of the strike:[125]

> The immediate result of the strike is that we have 115 fewer houses on the fair list than formerly, while 1,500 blacklegs now occupy frames previously held by London society members.... Some five months have elapsed since hostilities commenced, but what particular vantage has the LSC gained? We answer unhesitatingly none.

As Table 8 shows, however, 25 firms had been brought into line between April and November, including many of the largest houses in the city. The LSC Executive argued for its part that the majority of London firms were now working 50 hours - including many of the open houses - while the union had demonstrated its ability to withstand even the most protracted confrontation with the employers without significant organisational damage.[126]

An independent assessment is more difficult to formulate. The LSC list of fair houses contained 582 firms in January 1910 and 488 in November 1911, of which 38 were added during the year.[127] The LMPA listed 969 open or non-society houses in March 1912, but is unclear how many of these were actually

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125 Report of LSC Quarterly Delegate Meeting, 28.6.1911 in Printers' Register, July 1911, pp.7-8.

126 LSC AR 1911. For a subsequent debate over the results of the strike, see the exchange between Whittaker of the LUA and Naylor of the LSC in Printers' Register May 1914 and LTJ June 1914.

127 LSC AR 1911, p.43.

members of the organisation or how far this represented a larger number than before the strike.[128] Since there were no more than 1,200 printing firms in London (and perhaps closer to 800), however, this latter figure is quite misleading and must include many of the estimated 3-400 small printers who employed no labour; the LMPA itself claimed 260 members in July 1912, of whom 55-60% or c. 150 firms were working 52½ hours, which seems a more plausible estimate of non-union strength.[129] It should also be noted that the following year saw a significant reshuffling of the LSC Executive Council - three members did not stand for reelection, including leading socialists such as Harry Hobart who had come top of the poll during the strike, while four were defeated - suggesting that the LSC's membership did not view the outcome of the strike as an unqualified success.[130] Nevertheless, it seems that despite the cost of the strike to the unions, the result was a very significant diffusion of the 50 hour week in London. According to a survey conducted by the Board of Trade Labour Department in July 1912 on the effects of the strike, the results of which it considered representative, 72.9% of all printing workers were working more than 50 hours per week in January 1911, while only 42.1% were working those hours in July 1912. Among hand compositors employed on book and jobbing work - the main groups of LSC members involved in the strike

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128 MPA MC Mar. 1912.

129 R. Lake (FMP) to Industrial Council, Enquiry into Industrial Agreements, Minutes of Evidence, qs. 6331, 6410-13; Naylor to ibid., qs. 8370-80.

130 Printers' Register, Mar. 1912; MPA MC Mar. 1912; Daily Herald 27.2.1911, p.4.

82% were working more than 50 hours in January 1911, but only 44% in July 1912.[131]

Meanwhile, despite the involvement of TA members in lockouts at provincial branches of London firms, negotiations were in progress under the auspices of the Board of Trade to resolve the tangled issues of the hours question, the rules revision, and the extension of the apprentice scale. A compromise was reached in March on the hours question, with the employers accepting a 51 hour week to be reached in stages depending on the number of hours currently worked in each district; a ballot of the provincial unions ratified this settlement in April. The rules and apprentice questions proved somewhat less tractable, but eventually with the London example looming menacingly for both sides, an agreement was reached between the TA and the various employers associations on 6 May 1911. A sliding scale was established for apprentices, with a new maximum of eight in houses with 100 or more journeymen; this agreement would come up for review in 1913. On the rules question various compromises were formulated: the TA agreed to indicators on composing machines, but the employers accepted the prohibition of bonuses, copy marking, and slugging of matter; the overtime limit was set at 16 hours per fortnight, with numerous exceptions especially for

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131 Board of Trade Labour Department, 'Recognised Hours of Printers and Bookbinders in London', Fair Wages Advisory Committee, Minutes of Proceedings 24.10.1912, Department of Employment Library. The representative character of this sample was challenged by the London MPA, which alleged that it included only 528 of the c. 1500 London firms (but see p.319 above); it seems likely, however, that most of the larger firms submitted responses. MPA MC Mar. 1912. The MPA itself claimed that 58% of printing workers employed by its members worked more than 50 hours. Lake to Industrial Council, Enquiry into Industrial Agreements, Minutes of Evidence, q. 6410.

newspaper work. As a central part of the agreement, a 'committee of reference' was established, composed of employer and union representatives, to which all incipient disputes were to be referred before resort to strikes or lockouts; the union accepted the indicators, for example, with the proviso that disputes arising from their use should be arbitrated in this fashion.[132]

The employers, still in the thick of their contest with the London unions, celebrated the agreements as marking the end of unilateral regulation:[133]

> It had now been laid down that it mattered not how unanimously they voted at delegate meetings, no rule could be operative that interfered with the working of the offices, or attempted to man the machinery, until those rules had been submitted to the employer and had been agreed to.

Though the TA membership voted to accept the hours compromise by a large margin (11,600 to 4,200), substantial discontent persisted among the rank and file, particularly over the rules and apprentice questions. Resolutions of protest flowed into the Executive Council from Liverpool, Preston, Blackburn, Oldham, Hull, Nottingham, Cardiff, Derby, Leeds, Wigan, Stockport, and Hartlepoole. as well as from the conferences of Yorkshire, Lancashire, and Northern branches; many complained of the Executive's "autocratic government", and some called for a special Delegate Meeting to be convened.[134] In the months leading up to the 1913 Delegate Meeting, resolutions were submitted by a series of Lancashire branches demanding that the Executive Council be henceforth prohibited from signing agreements without submitting them to the membership for ratification.[135]

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[132] LSC AR 1911, p.42; Daily Herald 26.4.1911; TA Executive Council Minutes 21.2, 18.3, 1.4, 8.4, 22.4, 26.4.1911; TC June 1911, p.7; MPA MC Apr. 1911; Musson, TA, pp.167-69, 192, 197, 216, 248-49; 296-97.

[133] MPA MC Apr. 1911.

[134] TA Executive Council Minutes, 18.3, 1.4, and 22.4.1911; Musson, TA, pp.149-50.

[135] TC Apr. 1913.

This position was adopted by the Delegate Meeting as a whole, which like that of 1908 saw a major attempt by the delegates to reassert rank and file influence within the union. The meeting therefore also passed resolutions censuring the extension of apprenticeship and demanding a lower scale for newspaper offices, rejected the compromise on indicators, and restored the overtime limit to the more rigid eight hours per week.[136] In the face of this upsurge of militant sentiment, the employers agreed to replace the hated indicators with time sheets but the other issues remained deadlocked until they were overshadowed by the outbreak of war in 1914.[137]

In London a series of political manoeuvres led to the unlocking of the stalemate on the 50 hours question resulting from the 1911 strike. To understand how this came about we must briefly review the history of the LSC's involvement in the struggle for 'fair wages' clauses in government contracts. Beginning in the mid-1880s, the LSC initiated a campaign of pressure on political bodies - from the London County Council and local school boards to the House of Commons - demanding that a clause be inserted in public printing contracts obliging master printers to pay the wages called for in the London Scale, if not actually to abide by trade union work rules. The union organised local groups to lobby candidates for parliament and local government, with considerable success; the Webbs observed in 1897 that[138]

> The LSC and the TA have, for the last ten years, used more electoral pressure with regard to the distribution of local work, than any other Trade Union.

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136 TA, Report of Delegate Meeting 1913, pp.33-34, 109-110, 127-28.

137 Musson, TA, pp.248-49.

138 Industrial Democracy, p.80; see also Alford, Letterpress Printing, p.195.

These campaigns played an important role in the adoption of Fair Wages resolutions by the London School Board and the London County Council in 1889, and by the House of Commons itself in 1891. The 1891 parliamentary resolution, vaguely formulated and of dubious legal status, remained largely a dead letter, and was followed by a Select Committee of the House of Commons on Government Printing Contracts in 1896, convened largely at the request of the LSC, while printing issues figured prominently in the 1908 inquiry conducted by the Fair Wages Committee. In 1909 the House of Commons passed a stronger resolution on fair wages designed to give a larger role to agreements reached through collective bargaining, and a Fair Wages Advisory Committee was formed to assist in the administration of the resolution.[139]

In the spring of 1912, the Board of Trade Labour Department carried out a survey of the hours worked in London printing establishments whose results we have already discussed. The report was referred to the Fair Wages Advisory Committee in October, which recommended that "50 hours should be regarded as the recognised working week for males in the London printing and bookbinding trades at the present time."[140] Accordingly, Masterman, the new Chancellor of the Exchequer, announced in the House of Commons on 29 October that the 50 hour week would henceforth be mandatory for government printing contracts. The London MPA held an indignant meeting against the government's decision, arguing that the Board of Trade's returns were incomplete and protesting that the fruits

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139 B. Bercusson, Fair Wages Resolutions (1978), chs.1-8. See also the reports of the 1896 SC on Stationery Contracts, 1897 SC on Government Contracts (Fair Wages Resolution), and the 1908 Fair Wages Committee.

140 Fair Wages Advisory Committee, Minutes, 24.10.1912.

of their industrial struggle were being snatched away politically; an angry resolution was dispatched to Conservative MPs. At a conference with the LMPA in December, Masterman refused to reconsider the order, arguing that 85% of the employers holding government contracts (by value £265,000 of £310,000) already worked the 50 hour week.[141]

The government's action, which threatened to deprive recalcitrant employers of the right to tender for public contracts, struck a wounding blow at the master printers' resistance. In the short-run, however, as Table 8 shows,it mainly affected smaller firms, since the larger book and jobbing firms which composed the backbone of employer resistance were no longer deeply involved in government printing, and some 15 of the former had already been reunionised by 1915. The LSC was maintaining an active missionary campaign for the reconquest of the major holdouts, which was brought to fruition in the context of wartime full employment. Firms such as Waterlow Bros. and Layton, Spottiswoodes, Harmsworth, and even Alabaster, Passmore, and Sons (which had been non-union since 1908) were reopened to LSC members; Table 8B shows the more general expansion of unionisation. By 1919, as Table 8A shows, only 36% of the original holdouts remained ununionised, and none of these were major employers; the rest had either conceded or gone out of business. Not only had the 50 hour week become generalised throughout London by the end of the war, but also the original demand of the 1911 strikers, the 48 hours, which was conceded on a

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141 MPA MC Mar. and Nov. 1912; Printers' Register Nov.-Dec. 1912; letter from FMP to Conservative MPs, Webb Coll EB LXXVII, f. 15; London MPA, Printers' Strike 1911 and the Treasury Intervention 1912, (1912). Bercusson does not discuss this case in his otherwise excellent work on Fair Wages Resolutions; interestingly enough this case runs counter to his general argument that these resolutions played virtually no positive role for the labour movement during this period.

national basis by the FMP and the Newspaper Society in 1919.[142]

While these union victories stemmed in the first instance from the enhanced bargaining power conferred by tight wartime labour markets, their roots lay in the superior - though not overwhelming - position won by the LSC in 1911, which in turn confirmed the growing consolidation of craft regulation. Without the leverage they had already acquired, the war alone would not have sufficed to permit the London compositors this final turn of the screw, nor indeed to maintain their gains in the face of the harsher economic climate of the 1920s.

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[142] Child, Industrial Relations, p.228.

Scotland

As we saw in Chapter IV, the introduction of composing machines did not initially give rise to a regional agreement with the employers, nor did it generate discontent among the rank and file to the same extent as it did in London and the English provinces. On the whole, the same pattern prevailed during the decade and a half preceding the First World War: despite the continuing progress of mechanisation and the growing displacement of hand compositors, pressures toward confrontation with the employers remained milder than south of the border. Nonetheless, the introduction of composing machines indirectly touched off a series of disputes with Scottish employers over the use of female compositors and unilateral regulation whose resolution profoundly affected the framework of craft regulation in the region.

In 1904, the Glasgow Typographical Society, the premier branch of the STA, launched a movement for an advance in its stab rate. This demand was eventually submitted to arbitration; the arbitrator agreed that the Glasgow men deserved an advance, but argued that competition from Edinburgh made it impossibl to grant one unless the Glasgow branch dropped its opposition to female compositors. This report gave rise to a great outcry among Glasgow compositors who had long opposed the toleration of female labour in Edinburgh and other Scottish towns; a special Delegate Meeting was therefore called to consider the question in February 1905. Fearing that the Glasgow delegates would insist on a union-wid ban on female compositors which would touch off an unsustainable confrontation with local employers, the Edinburgh branch (838 of whose 1,036 members worked in offices alongside more than 700 women) proposed that the STA formally abandon its opposition to female compositors, provided they be treated as apprentices

and included within the apprentice ratio. This motion was overwhelmingly rejected by the delegates; a compromise proposed by Aberdeen, another centre of female workers, carried instead, committing the offending branches to take the initiative for the "rectification of the female question as opportunity lends itself to a possibility of solution by the methods hitherto recognised."[143] The debate at the 1905 Delegate Meeting reproduced the main tendencies which had appeared in discussions on the same theme within the union during the previous decade: representatives of the stronger branches pressed for abolition, while those branches in which female labour was prevalent argued instead for the regulation and improvement of its conditions; with the sanction of a previous Delegate Meeting, the Edinburgh branch had sponsored an unsuccessful attempt to organise female compositors in 1898.[144]

During the next few years, several branches took up the Delegate Meeting's instructions with considerable success. After a fifteen week strike in Aberdeen the local branch obtained a pledge that no further women be introduced either at case or at machine; Dundee saw the number of female compositors reduced to two, while the Perth branch reported in 1909 the complete abolition of female compositors after a strike.[145] Meanwhile, under the stimulus of the unemployment

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143 STA AR 1907, p.21.

144 STA AR 1904, pp.28-31, 1905, p.46; report of 1905 Delegate Meeting in STC Mar. 1905; 'Statement of Edinburgh Branch on the Female Question', STC Sept. 1904; STC Oct. 1904.

145 STA ARs 1907, 1909.

caused by the 1907-8 slump, sentiment for a forward movement of the female question was building up in Edinburgh. Compositors there secured the 50 hour week in 1908 (machinemen in 1909), which had already been won in Glasgow in 1900.[146] The threat posed by mechanisation also played a part in the genesis of this movement - Edinburgh was extremely slow in introducing composing machines, since most masters considered women as an alternative - but monotypes began to be introduced in significant numbers from 1907-8, as this statement by one employer suggests:[147]

> ...While case-room conditions have long been bad for the hand compositor, they became even doubly so during the past 12 or 18 months. While hand composition was a rapidly diminishing quantity, its place was being steadily taken by machinery, and by machines almost solely manipulated by underpaid female labour.

With women occupying the newly introduced monotype keyboards, the problem acquired a new urgency for the already hard-pressed hand compositors. The final spur to action on the female question in Edinburgh was furnished by the growing cohesion of the local unions. The Edinburgh Printing Machine Men's Society had merged with the local Typographical Society in 1907, and in the years that followed the local PKTF began to show new signs of vitality, perhaps inspired by previous Federated campaigns against underpaid female labour in Barrow, Dublin, and Glasgow, as well as by more recent developments across the border.[148] For the first time, the Edinburgh compositors could confront the employers with the mass of the city's printing workers at their back rather than

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146 Ibid. 1900; Gillespie, STA, pp.155-56; for discussions of unemployment, see STA AR 1908, p.5, 1909, p.7.

147 Quoted in STA AR 1909, p.30. On female labour as an alternative to mechanisation, see Fraser to Fair Wages Committee, q. 4593; statement of Edinburgh MPA in Printers' Register Jan. 1910.

148 Gillespie, STA, pp.122-25; Musson, TA, p.290.

on the basis of their own limited industrial power.

In November 1909, the Edinburgh Typographical Society, under the auspices of the PKTF, issued a memorial to the employers demanding[149]

> that from 1 January 1910 there shall be no further introduction of females into our trade in Edinburgh, nor any importation of female compositors from other centres, and that in future machine composition be solely undertaken by male union labour.

The initial reaction of the Edinburgh master printers was entirely negative:[150]

> ...They regret that they could not see their way to accede to what would really be a revolutionary reversal of a state of matters which has existed for nearly 40 years, and that with regard to the proposition that machine composition should be performed solely by male union labour, they are obliged to point out that the operation of keyboards is specially suited in all respects to women; training as a compositor is no real qualification. It had been seen how the cognate act of typewriting (and keyboarding is nothing more than typewriting) has been practically monopolised by women....

As the Edinburgh movement got underway, however, its Federated character exercised a greater hold over the employers, and desultory negotiations were

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149 STJ Nov. 1910; NPKTF AR 1909. The Edinburgh branch had first raised the matter with the employers in 1906, Gillespie, STA, p.204.

150 STA AR 1909, p.43. Master printers in England were at this time clamouring for the employment of women on both the monotype and the linotype. See for example, the remarks at the LUA Annual General Meeting 1904, quoted in TC June 1904:

> What we want in regard to the linotype, I think is embraced in the phrase 'cherchez la femme'.... Until we get the opposite sex working the machines I am inclined to think we won't get full justice out of them.

Similarly, Straker, who had been defeated in an attempt to introduce female monotype operators in 1905, told the Fair Wages Committee:

> A woman operator on the monotype is very much better than a man. In my opinion, although the London Society have so far been able to prevent women operating linotype machines in London, the day is not so far distant when that is going to break down. (Fair Wages Committee, q. 4485.)

conducted during the early spring. Upon the breakdown of talks between the PKTF and the local MPA, a preliminary trial of strength occurred in one large book firm where "breaches of trade rules and customs" led the men to tender notices. At this point a new element entered the equation: the bulk of the women employed in each department struck alongside the men as demands were raised for improving their wages and conditions as well. As a result, the firm in question was forced not only to retract its revisions of work practices, but also to sign a modified version of the November resolution.[151]

The existing female compositors appear to have lined up solidly behind the male unionists in favour of immediate improvements in their own pay rates, despite efforts attributed to feminist activists to persuade them that their longer-range interests lay in defending the right of women to enter the trade. Thus a memorial addressed to the Master Printers by "We Women" argued that,[152]

> ...while recognising that the men have a real grievance in that some firms have employed an unfair proportion of young girls at subsistence wages, or nearly so, we women regard it as a great injustice that one of the main skilled industries open to Edinburgh women should be closed against them.... We women feel that the fact that women have been employed in Edinburgh as compositors for mearly forty years gives women a claim on the business.... In Edinburgh the monotype machines have been largely, if not chiefly, operated by women, and...women have proved themselves entirely competent to work these machines, so that it seems a great hardship that women should be debarred from working at them....

The Edinburgh MPA, impressed by this portent of new solidarity, reopened negotiations, but a further deadlock was reached in August as employers sought

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151 STJ May 1910, pp.353-54, Sept. 1910, p.438; see also the letter on women's organisation from a female printer, STJ May 1910, p.354.

152 Memorial 10.6.1910, quoted in STJ, June 1910. Emphasis in the original.

to retain the right to employ women on a proportion of future monotype keyboards. At this point, the PKTF held a mass meeting - attended by over 2,000 people according to union estimates - at which it was announced that 44 firms had already accepted the November memorial; the meeting resolved to hand in notices to the 17 major firms outstanding on September 3. After 10 days of frantic negotiations, during which the mobilisation of women printers and the blocking of work from leaving the city bolstered the unions' position, the employers finally accepted the following terms:

> No new female learners should be taken on up to 30th June 1916, and that all new keyboards during the same period should be operated by male union labour.

The employers had also pressed for a proviso fixing a three year moratorium on advance movements in Edinburgh; this was rejected by the STA, which agreed instead to "recommend their Edinburgh branches to maintain peace on all questions of hours and wages for three years." These terms were accepted by a mass meeting and signed by representatives of the Federated unions just before strike notices were due to expire.[153]

In the aftermath of the victory, the STA Delegate Meeting agreed to set up a special section for female compositors, though not without a certain amount of internal dissension. This special section, established in 1911, quickly enrolled more than 200 women; by 1918 it was reported that all women compositors in the city were so organised.[154] For their part, the Edinburgh employers appear

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153 STJ Oct. 1910, pp.433-39; STA AR 1910, pp.5-8; Printers' Register, supplement June 1910, Oct. 1910; Gillespie, STA, pp.204-5; for detailed accounts of the employers' proposals, as well as a list of the firms still holding out in August, see STJ Oct. 1910, pp.433-38.

154 For the attitude of the STA Executive Council towards the organisation of women, see STA AR 1910, pp.5-9; for the debate on the result of women's organisation, see the exchange in STJ June 1911, p.119, and Jul. 1911, p.200. On the success of women's organisation, see STA AR 1911-12, p.60 and Gillespie, STA, pp.205-6.

to have kept their side of the bargain, as the recognition of female compositors led to a reduction in the gap between their earnings and those of the men. During the First World War, women called in to replace men secured the full male rate, while during the interwar period, the female rate was set at 70% of the male rate in Edinburgh and Aberdeen (compared to less than 50% before the strike); elsewhere no differential was permitted. By the end of the Second World War, female compositors were clearly a dying breed: the improvement of conditions for those working had been won at the price of the long-term closure of the trade to women.[155]

The success of the Edinburgh movement, reversing forty years of relative weakness, can in part be attributed to the novel elements of women's organisation and Federation - the Warehousemen and NSOPA were particularly important supporters of the movement - together with the example provided by English developments. An important role, however, was also played by mechanisation itself: by 1910, the advantages reaped by Edinburgh master printers through the use of cheap hand labour had been eclipsed by the superior speed and productivity of the machines, and work was flowing back towards London and the English provinces.[156]

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[155] Ibid. pp.206-7.

[156] See the statement by the Edinburgh MPA quoted in STA AR 1910, p.43, cf. also Child, Industrial Relations, p.160:

> ...Up to the turn of the century the book trade had tended to drift from London to Edinburgh where composition costs were lower owing to the fairly general use of women compositors. After the introduction of composing machines, however, it became essential to have high quality labour in order that high output might offset increased overheads for capital charges. Edinburgh then ceased to hold a competitive advantage, and indeed by lagging behind in the installation of the new machines, tended to lose ground.

It should be noted, however, that there is no evidence that employers switched from female to male machine operators voluntarily out of considerations of the sort adduced by Child rather than as a result of union pressure. In France, too, the introduction of composing machines led to a reduction in the number of female compositors; see S. Reynolds, 'Women and the Printing Trade in France', (unpublished paper, University of Sussex, 1979), p.9.

Hence the introduction of composing machines, by subverting the advantages of cheap hand labour and by relieving a certain amount of pressure on the employers through higher productivity and lower unit labour costs, made possible a substantial improvement in the position of male trade union compositors in the city, given the new industrial support of other groups for the latter. As the STA itself observed:[157]

> Since the agreement was signed, the printing trade of the city has prospered greatly, and with the introduction of labour-saving machinery, and the consequent reduced cost of production, there cannot be any necessity for resorting to a system of type-composition which was threatening the best interests of the trade, and the very existence of our members.

The Federation's victory on the female question, however, only whetted the appetite of the long-downtrodden Edinburgh compositors for a thoroughgoing renovation of their position. The agreement signed by the MPA in September contained an unspecific pledge to improve the position of the linemen (hand piece compositors, whose position had long been deteriorating):[158]

> The number of linemen in the Edinburgh case rooms has year by year been growing beautifully less. There was a time when it was no hardship to be on 'piece'. But with the machine claiming more and more of the best work and the army of stab and time hands increasing steadily, to be on one's lines in these latter days has meant little money and many hardships. To be a lineman has become an indignity.

When the MPA failed to take any concrete steps to fulfil its promise, the Edinburgh case branch passed a resolution in February 1911 calling for the abolition of piecework as a "remedial measure". In the face of persistent

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157 STA AR 1911-12, p.6.

158 STJ July 1912; for similar developments in London, see LSC AR 1913, p.72.

refusal of the employers to yield any ground on this issue, the Edinburgh compositors unilaterally abolished 'slating' as of 1 January 1912. When presented with a memorial demanding the abolition of piecework and its replacement by a 7½d per hour stab wage, the MPA threatened a general lockout in July. In this instance, however the other printing unions were not willing to support the compositors, and the latter were thus forced to climb down; an article in the Scottish Typographical Journal accordingly proclaimed "The day of sectional strikes is over".[159]

At the 1912 STA Delegate Meeting a rank and file revolt similar to the one which had occurred at the 1908 TA Delegate Meeting precipitated an important restructuring of relations between the union and employers. The delegates passed resolutions demanding the 48 hour week, the reduction of overtime from 12 to nine hours per week, and new controls on short-time working. As in the English case, this attempted extension of unilateral regulation provoked a militant response from employers: the Scottish Alliance of Master Printers, the first inter-city organisation of employers in the region, was formed to oppose these measures. The imposition of the new overtime limit in Glasgow led the Masters' Alliance to threaten a joint lockout in Glasgow and Edinburgh unless the union agreed to a joint conference on the rules revisions. When in January 1913 the STA membership rejected the proposal of the joint conference that the implementation of the new rules be postponed until agreement could be reached with the employers, the latter posted lockout notices. In the event, however, the STA Executive reached a compromise on a modified version of the rules in April, signing a regional agreement for the first time. Though the 1913 Delegate Meeting rejected the terms of the agreement as subversive of local

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159 STJ Jan., Jul., Aug. 1912; STA AR 1911-12, p.58.

autonomy, and resolved that the Executive henceforth be permitted to negotiate minimum wages and hours but not working conditions, a new agreement on similar lines was concluded in January 1914.[160]

Thus by 1914, in Scotland as in the English provinces, conflicts arising from the mechanisation of composition had brought about important changes in relations between organised printers' and their employers, involving on the one hand an enhancement of the former's bargaining position and on the other an extension of both the regional scope and substantive content of collective bargaining. But here as the south of the border tendencies towards more centralised collective bargaining were checked by the rank and file's staunch defence of local autonomy and by the persistence on the shop floor of traditional methods of craft regulation.

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160 STA AR 1913, p.5; STJ Feb., Jul., Nov. 1913; MPA MC Jan. 1912, Jan.-Feb. 1913; Printers' Register, Feb. 1913; Gillespie, STA, pp.217-18.

## Conclusions: The Consolidation of Craft Regulation

By the eve of the First World War, the conflicts in Britain over the introduction of composing machines had clearly been resolved. Despite important differences in bargaining power and strategy among the three typographical unions, hand compositors had gained effective control over the machines on a craft basis. Formal agreements with employers in each region restricted linotype work to fully-trained union compositors, while union control of the monotype was first won *de facto* and then recognised by the employers *de jure*, at least in London and Scotland. This capture of the new machinery by hand compositors, in the context of the expansion of union organisation, increases in the speed of production and reductions in labour costs resulting from mechanisation, brought in its train a marked increase in the effectiveness of craft regulation.

The increasing hold of craft regulation was most evident in the tightening control exercised by the unions over the labour market. Pockets of non-unionism were being steadily eliminated, despite temporary setbacks such as the secession of some London houses after 1911, and in Scotland the advent of mechanisation made possible the elimination of the historic source of local union weakness, the employment of women as cheap labour. It was the steady revival of apprenticeship regulation, already underway from the 1880s, which represented the most important strengthening of the armory of craft regulation. Whereas it had often been possible for compositors to pick up the trade in small country printing offices in the mid-Victorian period, chapels were now stricter in demanding proof of new employees' credentials, and in any case machine operating

skills could only be acquired in offices large enough to afford the new technology, which was at first quite expensive.[161] The initial agreements on the introduction of composing machines made explicit provisions for the training of apprentices, and the regional collective bargaining agreements resulting from conflicts over the consequences of mechanisation signed at the end of the period formally incorporated modified versions of the unions' apprentice scales; similarly, it was during the struggle over mechanisation that the LSC first codified its apprentice ratio.

By 1914, there had emerged a fair body of evidence showing that these ratios were being effectively enforced throughout the country. A survey conducted by the provincial unions in 1909 showed that there were 3,760 apprentices to 14,472 journeymen in offices recognised by the TA, a ratio of nearly 1:4; in Scotland the figure was closer to 2:5, and these orders of magnitude were confirmed by a second sample of 146 firms published by the Board of Trade Labour Department in 1915.[162] Enforcement of apprenticeship was universally agreed to be most effective in London, where apprentices had been banned from daily newspaper offices, and the actual proportion was doubtless rather more favourable than the 1:3 ratio called for in the LSC rulebook.[163]

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161 For a first-hand testimony to the changes at work in this period, see Katin, 'A Compositor's Point of View', pp.137-39.

162 Board of Trade, Report of an Enquiry into the Conditions of Apprenticeship and Industrial Training (1915, copy in the Department of Employment Library), pp.242-43.

163 'Report of Special Committee on Unemployment', LSC Trade Reports 1908; N.B. Dearle, Industrial Training (1914), pp.57-58; Board of Trade, Apprenticeship, p.252.

The increasing hold of craft regulation made itself felt in other areas as well. The deterioration in the social position of the hand compositor in the 1870s and 80s had stemmed from printing employers' need to speed up and cheapen hand labour in the absence of mechanisation; piece-stab, systematic overtime, and casualisation were the chief means to this end. The introduction of composing machines removed the most urgent pressures of this nature and created a space for concessions on working conditions in the face of intensifying union pressure. As we have seen, both the linotype and the monotype offered significant savings on labour costs; Hazell, Watson and Viney's Aylesbury works which introduced monotypes in the early 1900s shows that labour costs declined from an average of 70.42% of total composing costs in 1904-8 to 54.76% in 1912-15 Similarly, the vast increase in the speed of composition afforded by the machines which produced on average 6,000 ens per hour or four to six times the output of a hand compositor reduced employers' dependence on systematic overtime and casual labour to meet peak demand: the FMP pamphlets both estimated a 50% saving on overtime costs.[164]

The reduction in the demand for overtime and casual labour coincided, as we have seen, with a marked tightening of union rules against these practices aimed at soaking up the displacement of labour resulting from mechanisation. With the growth in collective bargaining some version of these rules was incorporated in collective agreements in each region, and they seem to have been reasonably effective despite union complaints about their evasion by employers.[16]

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164 Hart, The Linotype; Elias, The Monotype; Alford, Letterpress Printing, pp.51-63, and Table III.

165 Naylor to Industrial Council, Enquiry into Industrial Agreements, Minutes of Evidence, q. 8329, 8414-15; Skinner (TA) to ibid. q.8667; Child, Industrial Relations, pp.214-18.

The decline in casual labour appears to have been particularly marked: as we have seen, the introduction of the linotype led to sharp reductions in casuality in Scottish towns in the 1890s[166] while Beveridge estimated in 1908 that the casual fringe among compositors comprised some 15% of the total compared to estimates of 20-35% twenty years earlier.[167] To be sure the gains won by compositors as a result of their capture of the new machines - higher wages and shorter hours for the machine operators, shorter hours and tighter craft regulation for the hand workers - were to a certain extent offset by the higher initial rates of unemployment mechanisation brought in its train, especially pronounced among older workers. But a central component of the revival of craft regulation was the protection it offered to hand workers: the various composing machine agreements not only restricted the recruitment of machine operators to the ranks of hand compositors but also guaranteed that those of the latter who remained in employment would not be unduly disadvantaged by competition from the machines through rules providing for equal access to copy and prohibiting machine operators from working at case. The effectiveness of these regulations in due course reduced the abuses connected with piece-stab, so that complaints about slating and the casualisation of piece hands were increasingly confined to districts where mechanisation remained underdeveloped, such as Edinburgh.[168] The rapid growth of the printing industry during this period

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166 See above, p.259.

167 W.H. Beveridge, Unemployment (1908), pp.140-41; Alford, Letterpress Printing, p.222; for earlier estimates, see above, pp.143-49. For other evidence that mechanisation led to a decline in the demand for casual labour, see TC Dec.1899, and a reprint from Systematic Costing in Daily Herald 23.2.-1911.

168 On the decline of piece-stab in London, see 'Report on Casual Labour and Piece Stab', LSC Trade Reports 1909.

meant that much of the hand labour displaced by composing machines was reabsorbed in those composing room tasks which remained unmechanised, such as making up, imposing, and display work; as a result of this trend, coupled with the survival of many small unmechanised printing offices, the 1911 census showed 37,883 hand compositors to 3,803 machine operators in England and Wales, a figure which if anything over-estimates the extent of mechanisation.[169]

The crucial determinants of these developments, as of the divergent pattern in engineering, lay in the balance of forces between workers and employers in the industry and in the broader economic trends which conditioned the latter's ability to afford concessions on wages, hours, and working conditions. The extreme vulnerability of printing employers, particularly daily newspapers, the leading sector in terms of both profitability and technical development to strikes and short interruptions in production at the hands of strategic groups of workers left them ill-placed to contest the capture by hand compositors of the new machines. At the same time, printing unions showed a far greater capacity for sustained cooperation in industrial action than did their employers, who found themselves divided by the divergences of interest between general and newspaper printers and by the intense competition among the latter. The rapid expansion of printing output, especially pronounced in newspaper and periodical publishing, coupled with the reduction of labour costs and production time effected by mechanisation, facilitated concessions to printing workers along a broad range of issues. The large book and jobbing firms, which were on the one hand less vulnerable to short stoppages and on the other less profitable, expanding less rapidly, and had gained less from mechanisation, tended to resist the demands of the compositors more effectively than did newspapers as a whole, as

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169 Alford, 'Business Enterprise'; Cannon, Skilled Worker, pp.235, 253.

did provincial newspapers which were significantly less competitive than their Fleet Street counterparts.

While a more comprehensive justification of these explanations must await a systematic comparison between developments in printing and engineering, the centrality of the causal factors we have identified can perhaps be underlined by a brief consideration of the divergences rather than the similarities in the experiences of the three typographical unions as they have emerged in this chapter. While all three unions won effective control over composing machines during this period, the terms on which such control was won were markedly less advantageous for skilled compositors in the English provinces compared to London and Scotland. Only the TA failed to secure the 50 hour week before 1914 or to obtain formal recognition from employers of its exclusive control over monotype keyboards; TA members were likewise obliged to accept an extension of their apprentice scale, as well as inferior arrangements for overtime and the division of work between case and machine hands to those prevailing elsewhere.

The TA's concessions to employers were, as we have seen, the result of the union' Executive's reluctance at crucial moments to risk a major industrial confrontation, while the most important gains of compositors in London and Scotland were obtained either through strike action, as in Edinburgh in 1910 and in London in 1911, or by the threat of such action, as in London in 1896 and 1906. Such variations in the willingness of the unions to take industrial action can in turn be explained on a number of levels. The TA Executive's conviction of weakness, which underlay its conciliatory strategy, was in part the product of the union's failure to organise important sections of its territory, such as the South and Southwest, as well as of its authoritarian and centralist political style which made the leadership much less willing to mobili

the rank and file in support of militant demands than in the more participatory LSC.

Equally importantly, however, the provincial union faced a qualitatively different constellation of forces to that prevailing in London or in Edinburgh and Glasgow, the main centres of the STA. Crucial to the success of the LSC and the STA in their major confrontations was the combination of division among the employers with a broad front of unity among the unions organised in the PKTF. As we have seen, the inability of London newspaper proprietors to combine for joint resistance to the unions and their defection from the LMPA allowed the LSC first to win repeated concessions on the operation of composing machines and the to finance the 1911 strike from contributions from newsmen still at work. Similarly, the early collapse of the employers' front in Edinburgh made it possible for the PKTF to use concessions from some firms to coerce the holdouts. Conversely, as its various disputes over apprenticeship, monotypes, rules revisions, and shorter hours converged, the TA found ranged against it a comprehensive national coalition of newspaper, book, and jobbing printers, against which its position was indeed precarious. Similarly, when the STA rules revision movement provoked a threat of a joint lockout by employers in Edinburgh and Glasgow, that union, too, was obliged to retreat, despite its more open union structure. The contrast is likewise apparent between the success of the 1910 Edinburgh campaign against underpaid female labour, an issue which affected all the printing unions, and the failure the following year of the campaign against piecework which affected compositors alone.

Finally, the variations in the capacity of printing employers for collecti action themselves flowed in part from variations in market position and industri

structure. As we have argued throughout, the divisions among printing employers resulted above all from the vulnerability of newspaper owners to strikes in the context of a competitive market and volatile readerships; the book publishers, with their more standardised and durable product together with the possibility of decentralising their operations, were far better placed to resist the demands of the printing unions. This broad, ideal-typical patter, however, applies more fully to large metropolitan centres like London, Glasgow, or Manchester than to the smaller provincial towns, where competition between newspapers was less intense. Consequently, it was more possible for newspaper proprietors from different towns to cooperate against the unions than it was for those within a major metropolis, and this helps to explain the less favourable conditions secured by the TA compared to its counterparts in London and Scotland. At the same time, the coalition formed against the TA in 1911 of newspaper, book, and jobbing employers was the product not only of the structural forces which made such an alliance possible, but also of the convergence of separate conflicts which made it seem necessary to its constituent sections.

# Chapter VI

## Guerilla War In The Workshops: Engineering, 1898-1914

The employers' victory in the 1897-8 engineering lockout began rather than concluded a major period of struggle over the division of labour, in contrast to their victory in 1852 or to the London printing strike of 1911. Faced with mounting competition from American and German producers employing more advanced divisions of labour, as well as staunch resistance from skilled workers to initial attempts to introduce non-craftsmen on new machine tools, British engineering employers had embarked on a major confrontation with the leading craft union in the industry, the ASE. The employers' aim in this clash had been to create a new structure of industrial relations which would enable them to respond to threats to their market position by reorganising the division of labour in their workshops; the Terms of Settlement which concluded the dispute represented the key instrument of this design. But as in printing, where skilled workers had secured strategic initial advantages in the struggle for control of composing machines through the signing of favourable collective agreements in the 1890s, the engineering employers' victory did not in itself establish the shape of the new division of labour, but rather defined the framework within which the struggle over its development would be conducted. The questions of whether British engineering employers would be able to use the Terms of Settlement to meet threats to their market position by transforming the division of labour - and of what strategies of resistance skilled workers and their unions would develop in response - remained very much to be answered.

In the event, a combination of market factors, the internal structure of the ASE, and the continued capacity of skilled workers for local resistance conspired to limit the extent of the transformation of the division of labour in the British engineering industry before 1914. A thoroughgoing transformation of engineering production depended on an extensive demand for standardised, mass produced goods - both capital goods and consumer durables - which existed only to a limited extent in pre-war Britain, in contrast to the USA and even to Germany. At the same time, the movement of the terms of trade in favour of primary producers after 1900 generated a boom in demand from the underdeveloped world for the products of Britain's traditional export industries which drove their output levels to new heights and eased short-term pressures on engineering manufacturers to diversify and reorganise production. Even if American and German firms were cutting into Britain's relative share of world trade in engineering products, the absolute level of British sales - and with it the profits of individual firms - were rising rapidly.

The thrust of the engineering employers' strategy after 1898 was to use the Terms of Settlement - and behind them the threat of a crippling lockout - to force the ASE Executive to discipline its members into accepting a centralised framework for collective bargaining which would neutralise local resistance to changes in working practices, or indeed to a great extent in questions of wages and hours. The union Executive's conviction of the employers' real strength, together with its proclivity for centralising control over trade policy in its own hands, led it to pursue a conciliatory policy of working within the Terms of Settlement, ordering its members to accept the new disputes procedures, new systems of incentive payment associated with the intensification of work, and

even wage cuts in times of recession. But the employers' determination to press forward the reorganisation of the division of labour - by promoting handymen onto machine tools, and by introducing new methods of wage payment and supervision - along with a militant policy of wage reductions during trade downturns provoked bitter resistance from skilled workers against this double threat to their craft status and their standard of living. The ASE had always ranked among the most democratic of British unions, and the Executive's freedom of action was strictly limited by union rule through checks and balances administered by the membership and local officials: trade policy was formally entrusted to the Delegate Meetings which alone possessed the power to amend union rules, while an elected Final Appeals Court was the final arbiter in the interpretation of those rules. In this context, it proved easy for rank and file craftsmen to win the support of local officials in their struggle against the Terms of Settlement, and the employers' strategy therefore eventually led, as we shall see below, to the disintegration of the ASE Executive's own policies and authority. The boom of 1911-14 then saw a widespread revival of craft militancy, which enjoyed considerable success, at least in the older sectors. Despite the substantial changes in the organisation of work in the industry between 1898 and 1914, it would require a world war, another lockout, and a prolonged depression to complete the transformation set in train in the 1890s.

Economic Imperatives and Obstacles to the Transformation of the Division of Labour.

In a capitalist economy - especially a highly competitive one such as late Victorian Britain - where the basic economic unit is the individual firm, investment decisions are made on the basis of calculations of possible profits set against possible risks, with the time-horizon varying with the size and market power of the firm. In this context, a rational entrepreneur has no interest in equipping his factory with the most advanced technology available for its own sake, nor even in directing investment towards the maintenance of his country's predominance in a particular sector if that does not also involve sufficient and secure returns for his own firm.[1] Thus in those sectors where there was little effective foreign competition before the First World War - notably textile engineering, but in other areas of the older, heavier sectors as well - British firms were under little pressure to undertake a wholesale transformation of production, even if potential competition was developing overseas. But in the newer, lighter sectors pioneered by American and German manufacturers - such as sewing machines, motor cars, or electrical goods - British firms would be unable to enter world markets unless they adopted mass production methods.

But even where effective foreign competition developed in this period, the real issue was always profitability. British manufacturers could concede a growing share of European markets to American and German competitors if they

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[1] For a similar argument, see E.J. Hobsbawm, Industry and Empire, (Harmondsworth, 1969), pp.187-89.

themselves could maintain a reasonable level of profit by turning to markets in the Empire and the rest of the underdeveloped world. Locomotive building furnishes a conspicuous case in point: exports - chiefly to India, South Africa, and Latin America - became progressively more central to British makers after 1870, while Germany dominated European markets.[2] Such tendencies were greatly accentuated by the marked movement of the terms of trade in favour of the primary producing countries after 1900, a trend which created a veritable indian summer for the older export-oriented sectors of British industry, raising the demand for their products to unprecedented levels.[3]

At this point, it will be useful to distinguish between two strategies for the changes in the division of labour which differ in terms of their extent the level of investment involved, and the market conditions favourable to their adoption. The first strategy, which following much modern usage may be termed 'rationalisation', consists of a systematic transformation of the structure of the division of labour through a programme of capital intensive investment, generally involving the introduction of automatic and semi-automatic machinery and bringing in its train major changes in workshop layout, in the composition of

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[2] Saul, 'Engineering', pp.195-205.

[3] Lewis, Growth and Fluctuations, especially chs.1-5. The export of capital from Britain, which in the second half of the 19th century had been closely associated with export-led growth, likewise experienced a marked revival after 1900, reaching its highest levels of the entire pre-war period in 1913. P.L. Cottrell, British Overseas Investment in the Nineteenth Century (1975), especially, pp.11-15.

the labour force, and of course in work rhythms and practices.[4] The second strategy, which we have encountered repeatedly in our discussion of conflicts between skilled workers in both engineering and printing, amounts to a rather more piecemeal approach to the reorganisation of the division of labour. In this latter case, new machinery may also be introduced but side by side with existing plant, and the main thrust of employers' efforts to improve their competitive position focusses on methods of cutting labour costs and intensifying work without major capital investment, through some combination of piecework, closer supervision, systematic overtime, the use of apprentices as cheap labour, and other attacks on craft regulation. These strategies obviously represent ideal types rather than absolute alternatives, and rationalisation entails attacks on craft regulation, similar to those of its humbler relation, but the level of capital investment required - as well as their impact on skilled workers - nonetheless serve to set them apart.[5]

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[4] The term rationalisation first came into common usage during the 1920s, and its principal meaning referred to the reorganisation of the structure of ownership of depressed industries to eliminate excess capacity and create more efficient managerial structures, though in practice it also came to refer to the reorganisation of work, often involving speed up and changes in the methods of supervision and wage payment. We have on the whole eschewed the use of rationalisation as a broad term for the reorganisation of the division of labour, prefering to restrict its use to a particular strategy linked to capital investment. For the development of rationalisation as a concept and as a managerial strategy in Europe, see P. Devinat, Scientific Management in Europe, International Labour Office, Studies and Reports, Series B, 18, (Geneva, 1927); and International Labour Office, The Social Aspects of Rationalisation, Studies and Reports, Series B, 18, (Geneva, 1931); R.A. Brady, The Rationalisation Movement in Germany, (Berkeley, 1927); C.S. Maier, 'Between Taylorism and Technocracy: European Ideologies and the Vision of Industrial Productivity in the 1920s', Journal of Contemporary History 5 (2) (1970); M. Nolan, 'The Infatuation with Fordism: Social Democracy and Rationalisation in the Weimar Republic', (unpublished paper, Harvard Universit 1979). On the ideas of rationalisation in Britain, see L. Hannah, The Rise of the Corporate Economy, (1976), ch.3.

[5] For an argument that German industrialists in the pre-war period often preferred methods of intensifying work and boosting output which did not involve extensive capital investment, see D. Groh, 'Intensification of Work and Industrial Conflict in Germany, 1896-1909', Politics and Society 8 (4) (1978).

The strongest imperative toward the transformation of the division of labour is rapidly rising demand. Rationalisation is a risky and expensive venture, involving investment in new machinery and other elements of physical plant - including in many cases the remodelling of whole factories - as well as the possibility of resistance from skilled workers. Hence the most powerful stimulus to rationalisation is rapidly rising demand which cannot be met using existing methods - whether qualitatively or quantitatively - which leads entrepreneurs to believe that the potential returns from such investment will justify the risks involved. Where demand for a product is not expanding in this way, entrepreneurs will be unwilling - and often unable - to pour in the capital necessary for the transformation of production even in the face of effective foreign competition, as the case of British heavy engineering firms after the First World War would demonstrate.

The period between 1898 and 1914 was one of general expansion for the British engineering industry as a whole. Total male employment in the metal trades increased by two-thirds between 1891 and 1911 (see Table 1B); Lewis' index of output for iron and steel products registers an increase from 66.4 to 100 between 1898 and 1914, and exports, which in 1907 amounted to roughly half total domestic production, rose from an average of £12.1 million in 1889-93 to £32.3 million in 1909-13.[6] The older sectors of the industry shared in the general growth, but it was in the new sectors that expansion was particularly rapid, in part because of the low base from which they started. The use of

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[6] Lewis, Growth and Fluctuations, p.250; Jefferys, Engineers, p.118.

electricity and electrical products grew at a rate of 15% per annum between 1900 and 1914, and by 1907 electrical engineering, which had only begun in Britain in the 1890s encompassed some 14% of the total value of engineering output.[7] Similarly, according to the Census of Production, some 78,000 workers were engaged in the production of motor cars and cycles in 1907, or nearly 40% as many as in shipbuilding; Professor Saul, using a different source, estimates that the industry employed over 100,000 workers by 1914.[8]

But despite the rapid development of these newer sectors in relative terms, specific features of the British market placed important obstacles to their levels of growth in absolute terms. In some cases, the problem lay in prior commitments to older technologies and the absence of necessary infrastructure, as in electrical engineering where gas lighting and the slow diffusion of electrification inhibited the demand for electrical products: similarly, the early and extensive development of telegraph networks appears to have restrained the growth of the telephone.[9] In other cases, mainly consumer durables, the weakness of working class purchasing power limited the spread of the new products.[10]

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7 Ibid, p.120.

8 Ibid.; Saul, 'The Motor Industry in Britain to 1914', Business History, 5(1) (1962).

9 I. Byatt, 'Electrical Products', in Aldcroft, Development of British Industry; R.E. Catterall, 'Electrical Engineering', in N. Buxton and D.H. Aldcroft (eds.), British Industry between the Wars (1979); Saul, 'American Impact'.

10 Saul, 'Motor Industry' and 'Mechanical Engineering'; cf. also J. Saville, 'Some Retarding Factors in the British Economy before 1914', Yorkshire Bulletin of Economic and Social Research, 13 (1961); and P. Thompson, The Edwardians (St. Albans, 1975), p.187.

As a result, it was by no means clear that investments in the new sectors were the most advantageous course for established producers. Electrical engineering, for example, yielded average profit rates of only 1.67 per cent per year according to one estimate, and the most successful part of the sector was the cable firms which drew on methods of production developed in relation to the telegraph rather than the producers of lamps and electrical machinery which in Germany formed the cutting edge of industrial advance.[11] Similarly, several large arms producers, including Vickers and Armstrong-Whitworth, experimented with investments in motor car manufacture before 1914, but neither found the game worth the candle: their car subsidiaries made frequent losses and even in good years barely topped rates of return of 10% on capital, compared to the 15-20% earned by Armstrong-Whitworth's arms division in the same period. With the average level of British military spending increasing from £38.8 million between 1895 and 1898 to £68.4 million between 1910 and 1913, Sir Andrew Noble of Armstrong's was no doubt right to say that there was more money to be made from building one river boat than from producing 6,000 cars; under the circumstances it is hardly surprising that the capital of the heavy engineering companies flowed towards armaments rather than toward the new industries in the decade and a half before the First World War.[12]

The connection between standardisation and rationalisation was quite evident to contemporary commentators; thus one pre-war writer on scientific management observed:[13]

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[11] I. Byatt, The Electrical Industry in Britain, 1875-1914, (Oxford, 1979), ch.8; Catterall, 'Electrical Engineering', p.248.

[12] R.J. Irving, 'New Industries for Old? Some Investment Decisions of Sir W.G. Armstrong, Whitworth, and Company, 1900-1914', Business History 17(2) (1975).

[13] The Engineer, 14.11.1913, p.443.

> A clear distinction must be drawn between those businesses which manufacture standard articles of fixed design, and those which have to tackle construction problems which vary from day to day in every particular, as for instance between firms which make highly specialised products, such as sewing machines or typewriters, and others which build ships and machinery for them. In the former case, standardisation can be carried to an extreme limit, whereas in the latter, there is abundant room on the part of both designer and executant for the display of technical skill and ingenuity in meeting the varying demands of the work.

The sources of variability lay not only in the nature of the product, but also in the absence of a stable and predictable demand for it. Thus the key obstacle to rationalisation in shipbuilding was its propensity to rapid and violent fluctuations in demand, while firms were called upon to produce a wide range of ship types, generally on a one-off basis. Hence employers continued to require workers with a range of general skills who could be laid off and rehired with the movement of the trade cycle, so that a far-reaching transformation of the division of labour was not economical, despite the rise of foreign competition and the consequent fall of Britain's share of world shipbuilding from 81.7% of all tonnage launched in 1892 to 58% in 1913.[14] In fact, as Pollard and Robertson have shown, where this pool of skilled labour did not exist, as in Germany and the United States, manufacturers sought to fill their places with a more advanced division of labour based on capital intensive investment; in the slumps, however, their expensive machinery lay idle, producing massive losses.[15]

In the older, heavier sectors, manufacturers also had extensive investment in pre-existing machinery and plant which often discouraged innovation. It was in many cases economically more rational for firms to continue making

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[14] Pollard and Robertson, Shipbuilding, p.45.

[15] Ibid., especially ch.6; Reid, Shipbuilding, pt.I.

adequate - and often after 1900 growing - profits with older plant, despite the fact that their foreign competitors were using a more productive technology, rather than writing off the older plant and undertaking the expense of a massive retooling. Where new automatic and semi-automatic machinery could be introduced piecemeal, without necessitating a wholesale reorganisation of the division of labour and plant layout, on the other hand, there is considerable evidence that British manufacturers actively followed this path, as in textile engineering. In other cases, peculiarities of the market combined with features of existing engineering production to discourage change. In locomotive building, for example, British makers specialised in a delicate high-quality engine which proved to be badly suited to the poorly constructed tracks common in many parts of the underdeveloped world. This limited the British firms' abilities to compete in many foreign markets, but it would have been prohibitively expensive to reorient themselves toward an entirely new type of product.[16]

Furthermore, it was in the older sectors that craft regulation had achieved a customary status within the existing structure of industrial relations, so that any reorganisation of the division of labour would encounter fierce resistance from skilled workers. In the new sectors, on the other hand, where the new division of labour had not yet acquired a fixed form, manufacturers found it far easier to introduce new processes worked by the unskilled, since this did not displace already entrenched craftsmen. This contrast was heightened by the fact that the new sectors developed primarily in the West Midlands

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[16] Saul, 'Mechanical Engineering', pp.115-17.

and around London, outside the older engineering centres of Lancashire, the Northeast Coast, and the West of Scotland, where craft unionism was most powerful.

Thus it was not in the lighter sectors where the transformation of the division of labour had progressed furthest by 1914 that employers encountered the stiffest resistance from skilled workers, but in those parts of the older sectors where craftsmen felt most keenly any attack on their established position in the division of labour. Textile machinery, marine engineering, machine tools, and to a lesser extent railway engineering offer examples of this type, but the armaments industry is much the most important case. A long established sector extensively organised by the craft unions, the arms industry was in the forefront of technical change, having a radically different market situation than the other commercial sectors of engineering. The chief customer for armaments was the British state, which for strategic reasons had little choice but to fulfill its military needs through British makers or to manufacture munitions itself. The state's requirements were above all military rather than economic in this sphere, though it employed complex market strategies for distributing work between the public and private sector and among the various private makers.[17] Thus in the face of the acceleration of international military competition in the years before the First World War, the state required the most technologically advanced weapons available, produced in Britain with little attention to market disadvantages. Consequently, unlike the

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[17] Trebilcock, Vickers Brothers, and 'A "Special Relationship"'.

other older sectors, the arms firms experienced rapid growth in this period, as we have already seen: by 1914, certain munitions concerns, such as Armstrong-Whitworth, Vickers, John Brown, Cammell Laird, Beardmores and the Royal Arsenal at Woolwich ranked among the largest firms in the country.[18]

Since many types of munitions - particularly shells, bullets, and some guns - were technically well suited to standardised repetition production, an important degree of rationalisation was in principle economical. In the years before the First World War, therefore, this sector was a prime site of conflict between skilled workers and their employers over the reorganisation of the division of labour; during the war itself, it would become the central focus of such conflict.

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18 Trebilcock, Vickers Brothers; Irving, 'New Industries'; A. Marder, 'The English Armament Industry and Navalism in the Nineties', Pacific Historical Review, 6, (1937); Hinton, Shop Stewards, pp.26-29.

## Towards a New System of Industrial Relations? The Terms of Settlement and the Employers' Offensive 1898-1908

In the immediate aftermath of the 1898 lockout, engineering employers believed that they had in principle removed the major barrier to the transformation of the division of labour in the industry. As the editor of Cassier's Magazine, a leading trade journal, declared in 1900:[19]

> The master again became master in fact as well as in name, and though he respects his men's union, he will not allow that union to come any more between him and his employees.... The free selection of the most suitable labour thus secured has given the employers the full and productive use of their machines.

Slater Lewis, an influential authority on works management, seconded these views:[20]

> The engineering lockout has put the British engineering trades on a sounder footing and has enabled manufacturers to begin the process of measuring swords with their foreign competitors, and further, it has led to a better understanding between master and man and has removed much of the deadly friction which hitherto existed.

Trade journalists and industrial engineers waxing enthusiastic over the technical and organisational achievements of American practice, held out hopes of a sweeping transformation of British engineering workshop which would enable employers largely to dispense with expensive and troublesome skilled labour. As one speaker before the Institution of Mechanical Engineers fervently proclaimed in 1902:[21]

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19 L. Cassier, 'The British Engineers' Strike of 1897-8: Its Lessons and Results', Cassier's Magazine, Apr. 1900, p.495. My emphasis.

20 J. Slater Lewis, 'Works Management for Maximum Production', Engineering Magazine, May 1900, p.213; cf. also B.C. Browne, 'Uses and Abuses of Organisation among Employers and Employed', ibid., Jan. 1901, especially p.553.

21 Proceedings of the Institution of Mechanical Engineers, 1902, quoted in Jefferys, Engineers, p.123.

> The main object of these modern methods...was that of reducing as far as possible the number of highly skilled workmen, that is fitters.

Similarly, H.F.L. Orcutt, a leading publicist of the new methods, writing in Engineering Magazine in 1899 with reference to American experience, prophesised the imminent demise of the skilled production worker with the spread of the turret lathe and the precision grinding machine:[22]

> This reduces fitting to a minimum and the result is a higher grade of work than can possibly be produced by the most skillful 'turner' or lathe hand. By this system it is possible for the lathe attendant to be a comparatively unskilled lathe operator, and to attend two or three machines taking heavy cuts and making fast feeds.

And as the same writer argued in 1902:[23]

> Probably in no department of mechanical work are the contrasts between the old and the new methods so striking than in erecting or assembling. In the new method, machining is done accurately to dimensions; in the old, machinery and tools are mainly used for removing metal, and reliance is placed on the fitter for proper working fits.... In the new, the number of fitters is strikingly small compared with the abundance of this class of helpers necessary in works running on old lines.

This movement towards rationalisation was given a further technical impetus by the development of high speed steel in 1900 by Frederick Winslow Taylor, better known as the father of 'scientific management'. The new types of steel made it possible to speed up work substantially: on an older tool like the centre (slide-rest) lathe, cutting speeds could be increased from 25 to 85 feet per minute, though it was with the newer tools, especially the milling machine, that the new materials had the most impact, yielding speeds

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22 H.F.L. Orcutt, 'Machine Shop Management in Europe and America', Engineering Magazine, Jan.-Mar. 1899.

23 'Modern Machine Shop Methods', The Engineer, 24-31.1.1902, p.125.

of up to 400 feet per minute. The effect of this innovation on the imagination of engineering manufacturers was vividly expressed by the President of the Institution of Mechanical Engineers looking back to his first encounter with it at the International Exhibition in Paris in 1900:[24]

> Those engineers who saw...a lathe running at high speed with a tool with its point red hot removing a dark blue chip felt they were witnessing the beginning of a revolution in tool steel and in machines fitted for its use.

Another important area of technical progress lay in the rapidly increasing use of electric power, in which engineering firms played a pioneering role, especially after 1905 when capital costs dropped sharply. By 1907 40% of machinery in the industry was electrically driven, and by 1924 90%. The savings and productivity gains could be considerable: Sir Thomas Richardson estimated that the introduction of three-phase driving had raised output by 20% in his Hartlepool engine works, and Merz claimed that Tyne shipyards had lowered costs by 40% when electricity replaced steam.[25]

The introduction of new tools and materials, however, could only be profitable if employers could develop ways to use the time saved, to ensure the optimal use of expensive capital equipment, and to prevent skilled craftsmen from applying their work rules to the new processes. Hence where extensive investments in the new techniques were undertaken, employers were forced to devote much greater attention to the overall planning of production, often

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24 Proceedings of the Institution of Mechanical Engineers, July 1910, quoted in Jefferys, Engineers, p.123. See also, Landes, Unbound Prometheus, p.297.

25 Byatt, Electrical Industry, pp. 78, 89.

reorganising factory layout to facilitate the smooth and rapid progress of materials through the various stages of production, now more interdependent than ever before. A separate tool-room was often established where highly skilled workers designed the jigs, fixtures, and other special purpose tools necessary for repetition production, while also grinding tools to the appropriate edges and angles for the rest of the workforce, tasks which had formerly been the province of the individual craftsman working at his machine.

At the same time, employers sought to appropriate to themselves and their supervisory staffs a greater share of the planning and direction of work itself, and to enforce tighter workshop discipline. Timekeeping therefore became increasingly important, together with new systems of supervision and incentive payment designed to speed up work and boost output. In many cases, a new type of supervisor, the 'feed and speed' man was employed to select the optimal angles and speeds at which machines should be operated, usurping this traditional prerogative of the skilled worker; where incentive bonus systems were in force, a rate fixer might also assume the role of setting output norms and piece prices based on primitive methods of work measurement. These new grades of supervisor often expanded at the expense of the traditional foremen, who saw their control over the direction of work, piece price fixing, wage payment, and hiring and firing diminish with the growth of bureaucratic administration and modern management techniques in the factory. The real target of the new methods, however, was the skilled production worker, and where they were pressed forward most fully the result was a significant reduction of the autonomy and discretion - and therefore the skill - required from him, while the fully skilled craftsman found himself pushed into new indirect roles outside

the immediate production process itself.[26]

In those large firms in the newer sectors where rapidly rising demand made possible major capital investments - as in the cycle, car, electrical, and arms trades - British manufacturers might undertake rationalisations of factory layout and of the division of labour which pressed toward the limits of the new technology. In most cases, however, the small and unspecialised character of the firm, the structure of the market, and the nature of existing plant discouraged major retooling, so that the extent of innovation consisted rather in the introduction of new machine tools and work practices within a workshop organisation that remained structurally unchanged. Indeed, a close examination of engineering employers' conduct in the aftermath of their victory in 1898 suggests that their attempts to break out of the confines of craft regulation were more an extension of traditional strategies of work intensification and cost reduction than any breakthrough into a new rationalising or 'Taylorist' mode. Material in the archives of the Engineering Employers' Federation - especially the case files of disputes over machine manning and piecework - together with the reports of the ASE's Organising District Delegates (ODDs) in the union's Monthly Reports allow us to form a relatively clear picture of events on the shop floor during this period, as well as to evaluate the operation of the new disputes procedure introduced by the Terms

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[26] On these changes, see Landes, Unbound Prometheus, pp.292-323, especially pp.313-14; Jefferys, Engineers, pp.124-25; Saul, 'American Impact', pp.28-29; Weekes, ASE, ch.5; Rowe, Wages in Practice and Theory (1928), app.III; Orcutt 'Machine Shop Management', and 'Modern Machine Shop Methods'. C. Littler, 'Deskilling and Changing Structures of Control', in S. Wood (ed.), Labour and Deskilling, discusses the changing administration of production, with many examples drawn from engineering.

of Settlement.[27]

These sources show that the most direct consequence of the lockout was to enable employers to pursue more effectively those measures which had been set in motion before the lockout but which had been impeded by local craft resistance. The promotion of handymen onto skilled men's work, the extension of piecework and systematic overtime, the subversion of apprenticeship into cheap boy labour, - together with questions of small wage advances and reductions - thus dominated conflicts between skilled workers and their employers in the years after 1898 as they had before. The main novel element lay in employers' attempts to introduce new systems of supervision and incentive payment designed to increase output and cut labour costs with little capital expenditure; even these grew out of methods already in force in some engineering workshops before the lockout, and tended to degenerate in practice into rate-cutting exercises, similar to those in force on conventional piecework.

Many employers who had promoted handymen onto skilled men's work during the lockout itself kept them on permanently, and others were added in subsequent months. Some idea of the extent of changes in machine manning can be drawn from Table 9 , which gives figures from the EEF archives for two marine and two inland districts, encompassing a total of 121 firms. The average number of

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[27] The EEF Archives contain complete files on cases raised through the disputes procedure concerning various issues - series M deals with machine manning and series P with payment by results - including the transcripts of local and central conferences, together with the relevant correspondence between the firm, the Federation at local and national levels, and local and national union officials; occasional reports from informers within local union ranks also appear. The ASE ODDs were full-time officials formally responsible to the Executive Council but elected by the districts to whom they also owed allegiance. The ODDs were involved in all important local negotiations, especially those involving the disputes procedure.

handymen promoted per firm was 8.8, and only in one inland district dominated by a small group of large firms did this figure approach 20; elsewhere it remained below 10. In the absence of information on average size of firms and on the distribution of promotions among firms, these statistics are difficult to interpret, but they suggest that while a considerable number of handymen were promoted onto skilled men's work, the result fell short of a radical transformation of workshop organisation. It is noteworthy as well that a significant number of skilled workers regained their position after the close of the lockout, while the number of handymen promoted during the lockout itself was much larger than those promoted in the succeeding six to nine months, suggesting that much of the existing slack in the division of labour had already been taken up.

The ODD reports and the EEF case files for the years following the lockout show that the typical machine manning dispute involved the promotion of a small number of handymen onto an isolated number of new machine tools or onto a rough part of fitters' work, such as scraping metal surfaces.[28] These

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[28] Fitters' work was on the whole less directly affected by the new machinery than was that of turners; it was rather the case that the greater standardisation resulting from technical and organisational change indirectly reduced the demand for fitters' labour. (See the quotation from Orcutt cited above, p. 353) Nonetheless, there are also indications that employers sought to substitute handymen on certain portions of fitters' work itself: as J.T. Brownlie (ASE General Secretary) told the EEF in 1914:

> The extension of this principle (the machine manning clause of the Terms of Settlement - jz) ...is being applied not only to the selection and training of these people (machinemen - jz) but extended into the fitting shops.... Happily it does not so easily apply to fitters so far as the machines are concerned, but our members view with serious gravity the extension of the principle of semi-skilled workmen being employed, and they deeply regret this extension, and view its introduction with great resentment in certain parts of the country. ('Verbatim Transcript of a Special Central Conference between the ASE and the EEF, 13.2.1914', EEF Archives, A(4)6.)

Cf. the transcript of a similar conference on amendments to the Terms of Settlement, 1.11.1906, pp.158-59, EEF A(2) 5.

sources are, however, more indices of resistance than of technical and organisational change as such, since they only record changes which were contested by the men involved, and therefore highlight developments in the older sectors where union organisation was powerful rather than in the newer ones where it was weaker. Despite these limitations, such sources offer important information on the extent of actual change. Speaking at a local conference arising from protests over the placement of a handyman on a turret lathe at a Blackburn textile engineering firm in 1900, the ASE ODD pinpointed the leading areas of conflict over machine manning:[29]

> We have found that in big shipyards and large engineering firms little or no alteration has been made.... Unfortunately, in Lancashire and especially East Lancashire, we have felt these terms more than anywhere else.

The dispute which erupted in the spring of 1900 at the large textile machine firm of Dobson and Barlow in Bolton is instructive as to the types of changes involved. The firm installed a new shop for handymen working automatic boring machines, displacing 59 skilled men, of whom 33 were forced to seek work elsewhere; this was sufficiently unusual for the EEF case file to bear the note:[30]

> This would appear to be the first case of importance where extensive changes were made by the introduction of new machinery, and the manning of such machinery by unskilled labour.

Only in the newer sectors and the large arms firms - especially at the Vickers' works at Barrow and Erith - do we find examples of efforts on a comparable

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29 'Verbatim Transcript of Local Conference, 20.1.1900', EEF Archives M(4), 1-2, (Livesey case).

30 EEF M(9)3; ASE MJ & R Oct.-Nov. 1900; EEF Executive Report 229, 4.12.1900, pp.7-9.

scale to shift work away from skilled men.[31]

By its acceptance of the Terms of Settlement, the ASE had formally abandoned its claim that the District Committees should be permitted to ban piecework on a local basis, though the union intensified its efforts to secure a role for itself in piece price fixing. Thus in the aftermath of the lockout piecework spread rapidly: according to the 1906 wages census 33% of fitters and turners were paid by the piece, as opposed to 12.9% 14 years before. (See Table 5) The 'mutuality' in price fixing prescribed by the Terms of Settlement was in most cases a mere fiction, as employers took advantage of their enhanced power to fix prices unilaterally; the result was that pieceworkers' earnings could on occasion fall below the level of the standard day rate. Again Lancashire was a particular black spot, and the ODD for the region, commenting on a dispute over piecework in Bolton, complained of the plight of the piece worker, "left to scramble according to his limited opportunities for the crumbs that are left when everybody else has been served."[32] The absence of mutuality in piece price fixing therefore would figure prominently among the ASE Executive's grievances when it opened negotiations for a revision of the Terms of Settlement in 1900.

Employers were likewise quick to take advantage of the relaxation of craft regulation in the wake of their victory in 1898 to intensify their pressure on apprenticeship. In some cases, particularly in the cycle industry, unapprenticed boys were taken on as cheap labour plain and simple, elsewhere the number of apprentices to journeymen might be expanded to similar effect.[33]

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31 See EEF M(6)4, 1901, and M(9)9, 1905.

32 ASE MJ & R, Jan. 1900.

33 'The Cycle Industry', ASE MJ & R July 1897; reports of ODD 1 (Scotland), ibid. Apr. 1899 and May 1904; letters to ibid., June 1904, pp.17-18, July 1904, p.25, Sept. 1904, pp.24-25.

Thus a survey of eight Clydeside firms in December 1906 showed that in many cases the number of apprentices approached or even exceeded the number of journeymen; the Secretary of the North West Engineering Employers' Association estimated that the overall ratio of apprentices to journeymen was 60%, while Benjamin Browne observed that on the Northeast Coast the ratio oscillated from 60-80% in bad times to 50% in good times.[34]

Where specialisation and subdivision of tasks had been most fully developed, employers were especially prone to exploit their apprentices as cheap labour, with evident effects on the quality of their technical training As the General Secretary of the ASE told the employers in 1914:[35]

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[34] 'Verbatim Transcript of Conferences between the EEF and the ASE, SEMS, and UMWA, EEF A(2)5-9, pp.114-130. The returns from Glasgow were distributed in the following manner:

| Firm | Apprentices | Journeymen |
|---|---|---|
| Simon's (Renfrew) | 63 | 54 |
| Barclay, Curle (Finnieston) | 80 | 47 |
| Lobnitz (Renfrew) | 101 | 84 |
| Stephens | 72 | 90 |
| D. & H. Henderson's | 82 | 119 |
| Fairfield's (1 department) | 61 | 76 |
| Rowan's | 84 | 87 |
| Dunsmuir and Jackson's | 118 | 74 |

Source: ibid., p.114.

[35] Brownlie to 'Special Central Conference, 13.2.14', EEF A(4)6, p.16. Cf. this letter from an ASE member 14 years earlier:

> Repetition work means a remarkable proficiency in a short space of time, and the lad put to such work can no longer be looked at as an apprentice, but as cheap boy labour.... A majority of apprentices in the engineering trade today...are not introduced into the workshop to learn the trade, but to compete unfairly with the journeymen and be used as a safeguard in the event of dispute. (ASE MJ & R Mar. 1900, pp.21-24.)

> Here and there there are some old-fashioned firms who pay some regard to their trade in turning out efficient apprentices... but in a great number of shops - this applies especially to the textile industry and machine making - where lads are placed on machines to do a certain piece of work and they have little or no opportunity of acquiring that extensive knowledge that is to make good, all-round workmen, and the lads, unless they have the good fortune to be in the favour of the foreman or someone in the shop, are turned out into the market as an inefficient product.

J.T. Murphy's well-known account of his struggle to obtain a proper apprenticeship at Vickers' Sheffield works at the turn of the century exemplifies this tendency:[36]

> It quickly became apparent to me that unless I made a stand for myself I should become a victim of mass production. After a spell on a drilling machine I moved onto a miller. In all cases the process was simple and there was considerable repetition in it. I began agitating to be transferred to a universal miller where the work was more varied and skilled. So began the fight for variety of work and training. As soon as I felt I had mastered a particular machine and its class of work, I would politely ask Mr Graham the foreman, for a move on to another job. Politeness passed into indignant daily protests until in exasperation he would consent. In the course of a few years I worked on almost every machine in the place and on all classes of work.

Nor were employers slow to supplement these measures designed to increase the intensity of work with measures aimed at expanding its duration. The key issue in the lockout had, after all, been the employers' resistance to the demand for the 48 hour week; in the wake of their victory they were quick to press beyond the letter of the Terms of Settlement, especially in matters of overtime. The Terms of Settlement recognised employers' rights to demand 40 hours overtime per man per month, but the 'emergency clause' in the agreement was widely used to exceed this limit, as employers sought to reap the advantages of a small, intensively worked labour force menaced by unemployment outside the

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36 J.T. Murphy, New Horizons, p.23.

workshop, as before 1898.[37] Similarly, novel attempts were made by employers to eliminate breaks in the working day. In an attempt to reach a compromise over the hours question in December 1897, the ASE Executive had proposed that the working ~~day~~ week be set at 51 hours in exchange for the elimination of the traditional half-hour break for breakfast.[38] While this proposal was rejected at the same time, some employers later tried to institute the so-called 'one break system' without any corresponding reduction of hours; one such attempt provoked a major strike in Leeds in 1901 and disputes on this issue multiplied thereafter.[39]

All these measures represented attempts by employers to use the new leverage they had gained as a result of their victory in 1898 to push back the frontier of control by accumulating victories on all the issues which had formed the battleground of normal conflict in the years preceeding the lockout. The main point at which the employers threatened to step out of this framework into a qualitatively new assault on the existing structure of the division of labour lay in the introduction of new systems of supervision and incentive pay-

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[37] Barnes to Conference between the EEF and the ASE, SEMS, and UMWA, 1900, quoted in EEF Executive Report 229, 4.12.1900, p.4.

> All over the country the 40 hours limit per month has been inoperative. In many towns, not only have firms been working 40 hours per month, but nearly 40 hours per week, and our men have been told that this provision was only a recommendation and was not binding on the employers, and that in cases of emergency they can do as they like, being themselves the sole judge of what is emergency.

[38] Conference, Nov-Dec. 1897.

[39] ASE AR 1901; ASE ODD 3 (Yorks.), MJ & R Apr. 1901 and May 1902; for negotiations between the ASE and the EEF on this subject, see below, p.403.

ment. In many large engineering firms, employers sought to tighten up supervision by installing time clocks, by introducing non-union foremen, and by creating a new group of supervisors known as 'feed and speed' men whose duties encroached on the skilled worker's autonomy at his task; at the same time, a new method of incentive payment, the premium bonus system, was launched which aimed to overcome the disadvantages of piecework to the employer and which involved important elements of work measurement and intensification.

Engineering employers had always viewed piecework as a key method of increasing output per man hour and lowering unit labour costs; as we have seen, the extension of piece payment figured prominently among the weapons of managerial offensives against craft regulation from the 1870s forward. But piecework did not prove quite the royal road to efficient production that employers had hoped for, as it generated its own dilemmas, especially in relation to the fixing of piece prices. Workers in engineering, as in printing, believed that the additional effort involved in piecework should be remunerated at a higher rate than timework, and accordingly pressed for the initial price for each job to be fixed loosely enough for them to earn this bonus; often the strong shop floor organisation and intimate knowledge of the task possessed by skilled workers enabled them to influence price fixing in this way.

Once a particular task had been priced and worked for a period of time, however, it might then become possible for the operative to turn out work at a vastly increased pace, and so earn a huge bonus if the rate were left unchanged. In this case the employer found his labour costs increasing in

direct proportion to increased output and was therefore tempted to cut the rates, while the workers, conscious that there was an implicit or explicit limit on piece earnings, operated a covert system of restriction of output among themselves to protect the rates. As we have seen, rate cutting was accordingly a ubiquitous feature of piecework in engineering workshops, and had figured among skilled workers' principal objections to its introduction. By the 1890s, conflicts over price fixing had become so acute at a large arms work like Armstrongs at Elswick that the management had eliminated piecework entirely in most shops, and had replaced it with time clocks, tight industrial discipline, and a special group of supervisors known as 'feed and speed' men, whose "sole duty" according to one pro-management spokesman, was "to keep moving through the shops in order to see that each machine is being kept at its proper speed, and is producing the amount of work which it is known to be capable of turning out."[40]

An alternative strategy which gained many adherents among engineering employers after 1898 was to replace simple piecework with some form of progressive or 'premium' bonus system, whereby a maximum time was fixed for a task when it was assigned; if the worker completed the job in less than the time allotted, the proceeds were divided proportionally between worker and employer. Depending on the system, the worker might receive one-half or one-third of the time saved, though the time wage was often formally guaranteed,

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[40] B. Taylor, 'The Machine Question and Eight Hours', Cassier's Magazine, Nov. 1897, pp.97-117; cf. also the previous discussion of supervision and piecework at Armstrong's, pp.109-10.

marking an advance on most piecework arrangements from the worker's point of view. Slater Lewis, author of the standard manual, The Commercial Organisation of Factories (1896) anatomised the advantages of premium bonus over piecework in terms of its capacity to overcome workers' restriction of output:[41]

> The defect of this method (piecework - jz) is, that once the workman has begun to derive a profit from the transaction, the employer has no direct interest in his further exertions, but only has the indirect advantage of a stationary labour cost coupled with a greater intensity of output. The general result of this is, of course, well known and understood. There inevitably comes a time...when the gains of the workman appear excessive compared with his former earnings as a mere supplier of labour by the hour.... A reduction of rates inevitably follows.
>
> Of course, where much piecework is in vogue, the trouble does not necessarily arise with as much frequency as might be expected, for a very good reason. As soon as the workman finds himself approaching the point at which his extra earnings tend to rise beyond the limit at which the traditions of the shop teach him the reduction may be expected his efforts slacken....
>
> The important feature of the newer method (premium bonus, jz) is not that the saving is divided between employer and workman, but that no artificial barrier, no 'critical rate' of earnings looms in front of the latter to dampen his activity and lead him to slacken his energies.

Slater Lewis was not entirely correct on this last point: in most premium bonus systems, the division of the time saved between worker and employer shifted to the advantage of the latter as output increased, thus providing diminishing incentives for the former beyond a certain point. In theory, therefore, the premium bonus was intended to remove the need for rate cutting by building into the system of wage payment an automatic mechanism restraining workers' earnings from increasing in linear proportion to output.[42]

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41 J. Slater Lewis, 'The Labour Factor in the Intensity of Output', Engineering Magazine, Nov. 1899, pp.203-4. For a similar analysis, see the letter from William Denny of the Clyde shipbuilding firm in Webbs, Industrial Democracy, pp.293-96.

42 I am grateful to Alastair Reid for drawing my attention to this point. For the differences between the various bonus systems, of which were the Rowan and the Halsey, see G.D.H. Cole, The Payment of Wages (2nd ed., 1928), chs.5-W.F. Watson, The Worker and Wage Incentives (1934); M.L. Yates, Wages and Labour Conditions in British Engineering (1937), pp.85-88; and Weekes, ASE, pp.177-79. For a contemporary account, see the articles reprinted from The Engineer (1902) as The Premium System of Paying Wages (5th ed., 1917).

The principle of the 'progressive piece wage' had become relatively familiar to British employers by the early 1890s through its use in sections of the tailoring and boot and shoe trades, while its application to engineering was popularised through discussions of Halsey's American experiments during the same decade.[43] The first attempts to introduce versions of the premium bonus system into British engineering workshops, however, came in Glasgow in the wake of the 1897-8 lockout, where the firms of Rowan (locomotives), Weir (marine engineering), and Barr and Stroud (scientific instruments) played a pioneering role.[44] By 1901, a number of large firms in various sectors had introduced some variant of the premium bonus, and with the ASE Executive's acceptance of the practice under the terms of the 1902 Carlisle agreement, its diffusion accelerated markedly. As might be expected, the large arms firms such as Armstrong-Whitworth and Vickers (Barrow and Erith) were most enthusiastic in their introduction, though their example was followed by a considerable assortment of marine engineers, locomotive builders, and even some general engineers and machine tool makers, as well as the Royal Dockyards.[45]

Generally speaking, the introduction of the premium bonus and tighter supervision and labour discipline went hand in hand. One witness at the TUC Joint Committee's inquiry in 1909 testified that he had worked at Armstrong's under the feed and speed system;

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[43] Schloss, Remuneration, ch.6.

[44] Jefferys, Engineers, p.130; Weekes, ASE, p.178.

[45] See the evidence to the TUC Joint Committee, Premium Bonus, and the list of cases in the EEF Archives, Series P.

> One feed and speed overseer had five-six shops to overlook, and in many cases his supervision was only nominal. In 1904, however, the Premium Bonus system was introduced and they were subjected to close and continual supervision. He was on small work and had as many as 15-16 separate jobs in one day, each one having its own time allowance.

Similarly, another witness asserted that[46]

> It was a common occurence for an estimator to stand over a man, watch in hand, which was intolerable to any self-respecting man.

The systematic character of the changes involved emerges from an account by W.F. Watson, later a founder of the amalgamation movement within the ASE, of the alterations of workshop practice introduced by a rationalising manager at the arms and marine engineering works of Thorneycrofts of Chiswick in 1905:[47]

> Hitherto, if a man deposited his check in the timekeeper's box within five minutes after starting-time, he could walk leisurely to his shop. Time recorders were installed in each department and we had to 'clock in' within two minutes or lose half an hour's pay. The plant started up before time, and we had to be at work as soon as the hooter stopped; discipline men marched round to see that we did.
>
> Charts indicating the feeds and speeds to be employed were fixed on every machine, and 'feed and speed' bosses, armed with 'feedometers', endeavoured to keep men and machines working to their fullest capacity. Emery wheels were taken from the shop, all tools being ground to theoretic angles by unskilled man. A man was given six standard tools on starting, which were changed for new ones when worn. Men were forbidden to leave their job except when Nature demanded; labourers were sent for all tools and tackle. The lavatories were clean, but without doors and facing each other, with a perambulating inspector to see that no malingerer exceeded the seven minutes prescribed in a minatory notice.

Even where the Premium Bonus was not introduced, time clocks alone might well be, and employers supplemented these more radical innovations with traditional attempts to win foremen away from the trade unions. In 1896, the EEF established a 'Foremen's Mutual Benefit Society' aimed at persuading foremen that they could leave their union without forfeiting their accumulated benefits, which would be made good by the employers. The FMBA was officially registered

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46 TUC Joint Committee, Premium Bonus, pp.34-35.

47 Watson, Wage Incentives, pp.10-11.

as a friendly society in 1899, and by 1906 the EEF reported that it had enrolled 890 of a possible membership of some 3,500.[48]

It will be evident that these new systems of supervision and incentive pay introduced by British engineering employers in the first decade of the century bore some affinity to the schemes for scientific management which were taking root in the United States in the same period. Certainly, British managers were acutely interested in American developments, and the technical press of the period is full of detailed comparisons between British and American methods of factory organisation, wage payment, cost accounting and so on, especially in Engineering Magazine which published editions in both countries from 1897.[49] But most of the actual innovations in managerial practice introduced by British engineering employers had their roots in indigenous methods pioneered by the large arms firms, and even where some borrowing took place, as with the premium bonus system, modifications were made to suit British conditions. British managers were on the whole suspicious of the systematic character of American theorising, reflecting doubtless on the bias towards 'rule of thumb' methods in British cultural and entrepreneurial traditions, but more strongly the limited possibilities for wholesale reorganisation of factory layout and other expensive innovations. Thus Littler's study of changing managerial practices concludes that "there was no systematic time study or method study in Britain before the First World War...."[50] It was generally impossible to introduce so much standardisation as American theorists recommended, with attendent consequences for the extent of subdivision

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48 EEF Executive Reports 204, 31.1.1899, 207, 24.3.1899; EEF Executive Minutes, 9.10.1905. On questions of timekeeping, see ODD 3 (North east), Mar. 1901 and May 1905; EEF Executive Report for 1902.

49 See for example the special issue of Jan. 1901 on 'Works Management'.

50 Littler, 'Structures of Control', p.16.

of tasks; similarly, British managers rebelled at the high supervision costs imposed by American practice, and particularly rejected the high wage strategy which formed a central component of Taylorist, and later Fordist, thinking. Finally, British managers were much less sanguine than their American counterparts about the possibilities of inducing skilled workers to accept these innovations, a scepticism which would increase sharply in magnitude with the resurgence of craft militancy in the run-up to the First World War.[51] The bottom line in these debates lay in the question of overall profitability, and it was here that British managers were most sceptical. One writer in the Engineer in 1913, after raising objections about workers' resistance and supervision costs, went on to conclude that the success of the "American system of management" in Britain had been rare:[52]

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[51] On high supervision costs, see The Engineer, 14.11.1913, p.521; on fears of worker resistance, see ibid., and D. Smith and P.L.C.N. Pickworth, Engineers' Costs and Economical Workshop Production, (Manchester, 1914), pp.91-94, quoted in M. Barenberg, 'The British Reception of Scientific Management: A Case Study of Alleged Entrepreneurial Failure' (unpublished paper, Harvard University, 1976), p.20-21.

[52] The Engineer 4.11.1913, p.521. For a critique of the over-systematic approach of scientific management, see Engineering 1.2.1907, quoted in Weekes, ASE, p.174; for a general discussion of the reception of scientific management in Britain, see ibid., ch.5 and Barenberg, 'Scientific Management'

There is considerable evidence that American employers in practice shared much of the scepticism of their British counterparts about the more utopian components of Taylorist thinking, though they were able to press much further the aim of reducing the skilled worker's influence in the production process. See D. Nelson, Managers and Workers (Madison, 1975); Palmer, 'Class Conception, and Conflict'; Montgomery, Workers' Control; Stark, 'Class Structure'.

The proof of factory management is to be found in the sales department. Unless scientific management enables us to produce more cheaply or more quickly than before, it is of little avail. We have yet to learn that British works managed on American lines have paid higher dividends than British works managed on British lines.

## 'The Violent Clashing of Two Antagonistic Principles': Central Union Authority, Local Autonomy, and Resistance to the Reorganisation of the Division of Labour 1898 - 1908

While engineering employers were synthesising old and new tactics to press home the advantages won in the 1897-8 lockout, skilled workers, local union officials, and the ASE's national Executive were all for their part compelled to seek a new modus vivendi in the context of the changed balance of forces and the novel industrial relations procedures inaugurated by the Terms of Settlement. In this context, it was the national union Executive, by virtue of its centralising ambitions and the ideological orientation of its leading members, as well as its position at the fulcrum of pressures from the EEF, which was prepared to make the greatest adjustment towards working within the Terms of Settlement. In particular, the ASE Executive sought to enmesh the union within the new procedures for the avoidance of disputes, which stipulated that strikes could only take place after employers and union officials had failed to reach agreement in a series of local and central conferences, and to reorient the union away from craft regulation towards a more economistic conception of collective bargaining. It was these policies which would bring the Executive into the sharpest conflict with local officials and a rank and file determined to safeguard local autonomy and to resist encroachments on craft regulation regardless of the provisions of the Terms of Settlement.

The General Secretary of the ASE from 1896 forward was George Barnes, a socialist member of the Independent Labour Party who had been a leading supporter of Tom Mann's candidacy in 1892. In addition to his association with the reform

[53] It was alleged at the time of the 1897-8 lockout that Mann had agreed to support Barnes' candidacy for the ASE post on condition that once elected he press forward the demand for the eight hour day. Col. Dyer, 'The Engineering Dispute', Cassier's Magazine, Nov. 1897.

movement within the ASE and the new unionism, Barnes represented within the union a growing social democratic or state socialist current within the labour movement as a whole. Inspired by the union upsurge of 1889-90 and by general conceptions of class struggle, men like Barnes and Mann sought to revitalise British trade unionism by creating a militant all-grades movement to pursue both industrial and political objectives. Oriented toward the state and away from the workshop, the representatives of this policy current advocated cross-sectional demands over wages and hours in the industrial arena, but were most concerned to secure independent labour representation in parliament, which they hoped would yield political solutions to the general problems of poverty and unemployment.[54]

Before the 1897 lockout, Barnes had believed that trade unions could pursue militant policies in both the industrial and political arenas. As he wrote in May 1897:[55]

> And so we find the workers tied by the cords of class politicians to the stake of their own timidity, jealousy, and prejudice, over and anon, making ineffective efforts to reach the produce of their own labour, ever being flaunted before their eyes. Success lies only in freedom. That is to say that in political and industrial matters we must recognise the class struggle going on and wage our political, as we have our industrial battles, off our own bat. Until then we can only nibble, and in nibbling, get all we deserve.

But after the employers' victory, Barnes concluded that the union had little choice but to work within the Terms of Settlement and favoured the replacement of local resistance to the reorganisation of the division of labour by the development of national collective bargaining that would concentrate on wage

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[54] For a good general account of Barnes' career and ideas, see the article by B. Nield in J. Bellamy and J. Saville (eds.) The Dictionary of Labour Biography, vol. IV (1977), pp.7-14.

[55] ASE MJ & R May 1897.

issues. Believing that industrial militancy offered slim prospects of advancement, Barnes urged workers to concentrate their energies on parliamentary politics, particularly after his election as an MP in 1906:[56]

> ...Trade Unionism has a difficult time ahead of it, and it behooves us, as Trade Unionists, to put our own house in order. I am in favour of orderly and peaceful arrangements being made with the employers industrially, whenever and wherever it is possible to make them, so that we can the more effectively cement the Labour forces and focus them on Parliament.... We shall probably find that we need not strike at all except through the ballot box, which is the cheapest, most efficient, as well as the most humane way to strike.

By 1898 Barnes had already embarked on the road that was to win him a place in Lloyd George's war cabinet, while his erstwhile collaborator Tom Mann would go on to become a syndicalist militant in the pre-war labour unrest and later a founder of the Communist Party of Great Britain; both drew similar lessons concerning the future of the ASE's exclusive membership policies from the union's defeat in 1898. Immediately after the lockout's conclusion Mann and other dissident members of the ASE founded the Workers' Union to combat the enhanced organisational capacities of the employers by organising the unorganised into a "fighting union", beginning with those excluded from the ASE.[57] Barnes for his part preferred to reform the ASE itself, opening its doors to the less skilled in hopes of improving their conditions and at the same time strengthening that of the union. Thus in 1901 he wrote:[58]

> The engineering unions should frankly accept specialisation and adapt themselves to changing circumstances; they should, I think, grade their membership from the highly-trained all-round mechanic to the machine tender who, owing to simplification of processes, cannot rank as an engineer but who is entitled to a guaranteed living wage.

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56 ASE MJ June 1908, p.17.

57 R. Hyman, The Workers' Union (Oxford, 1971), ch.1.

58 'Uses and Abuses of Organisation among Employers and Employed', Engineering Magazine, Jan. 1901, p.567.

The employers' victory likewise touched off a fierce debate in the pages of the ASE's Monthly Journal on the consequences of "specialisation" and the merits of extending ASE membership to handymen and machinists. The proponents of an alliance with the less skilled argued that technical change and the attendant specialisation was constantly increasing the ranks of machinists at the expense of the full-skilled craftsmen; the latter could only hope to survive if they joined forces with the former to improve the conditions of both, a position best expressed by a cartoon showing a member of the ASE standing at the top of some steps and extending his hand to a machine man, with the caption, "My friend, I'd much rather raise you to my level than you should drag me down to yours."[59] The opponents of this policy feared that the admission of the less skilled would only dilute the ASE's claim to be a society of fully-skilled men, levelling down their wages to those of machinists and accelerating the movement of work to the latter; one spectre bandied about was the image of the ASE as a stream, whose width was increased by the addition of new tributaries at the expense of its depth and force.[60] But while Barnes could ensure that the proponents of an extention of ASE membership prevailed in the pages of the union journal, and even persuade the 1901 Delegate Meeting to create a new section for machinists, he was unable to convince the bulk of the membership, who remained committed to an exclusive strategy. Control over admissions to the new section, as with those created in 1892, remained in the hands of the District Committees dominated by the fully-skilled men, which continued to operate tacit bars against the machinists: by

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[59] ASE MJ & R Aug. 1901, p.25.

[60] See especially the letter from W.H. Lister, Woolwich Branch, ASE MJ & R Feb. 1900, pp.26-27; on the debate as a whole, see the editorial in ibid., Dec. 1899, and the letters in ibid. 1900-2, passim.

1904 only 4,000 machinists had been recruited into the special section created for their benefit, while nearly 90% of those joining the ASE were still fitters and turners as late as 1914.[61]

Despite the magnitude of the employers' victory in 1898, skilled workers in the districts were by no means prepared to abandon their struggle for exclusive control over the new machine tools. In Scotland, for example, returning ASE men refused to restart work when faced with labourers working their former machines; similarly, when labourers were placed on machinery at a Manchester wire works a few months later, the skilled men struck for their removal.[62] In many cases, the threat of a strike was sufficient to win a favourable settlement, as the reports of the ASE ODDs demonstrate.[63]

But where the employers were prepared to mount a more determined resistance to skilled workers' demands for the removal of handymen from machines they could count on the support of the EEF through the new disputes procedures established by the Terms of Settlement. A number of machine manning cases from the years immediately following the lockout illustrate employers' efforts to use the procedure to short-circuit local resistance to the promotion of handymen onto machines. Thus in one Halifax firm, ASE members struck spontaneously against the appointment of two labourers on polishing lathes formerly worked by skilled men; the ASE Executive obtained their return to work following the disputes procedure, and the resulting central conference ruled that the men had no right to contest the employers' action under clause six of the Terms of Settlement, which provided for managerial discretion in the

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61 Jefferys, Engineers, pp. 127, 166.

62 ODD 1 (Scot.), ASE MJ & R Feb. 1898; ODD 4 (Lancs.), ibid., Sept.-Oct. 1898.

63 ODD 4 (Lancs.), ASE MJ & R Oct. 1898, Aug. 1899, Jan. 1901; ODD 1 (Scot.), Dec. 1898; ODD 2 (Lancs), Jan. 1899, Oct. 1901; ODD 3 (Northeast), Jan. 1901; ODD 5 (Midlands), Dec. 1898, Jan. 1900.

working of machines.[64] Similarly an Oldham firm had introduced labourers on turret and capstan lathes during the lockout, and this state of affairs was tolerated by the skilled men on their return to work. As the craftsmen's confidence returned, however, they determined to force the removal of the handymen, and launched a campaign which culminated in a "lengthy stoppage" in 1900; here again, the strikers were induced to return to work under the disputes procedure and the matter was dropped by the union Executive at a Central Conference.[65]

But the most conspicuous case in which the ASE Executive secured a victory for the employers when a strike would have been likely to have brought satisfaction to the rank and file came at Vickers' Erith works at the height of the Boer War in 1901. When ASE men at Erith demanded that handymen on certain classes of work be removed from capstan lathes, and persisted in their claim after a local conference, the Secretary of the London Engineering Employers' Association wrote to the EEF underlining the seriousness of the situation and noting two main points:

1. If any concession is made it means the beginning of an almost intolerable state of things at Erith, and the gradual displacement, as complaints are made one after the other, of all unskilled machine hands.
2. I do not want our members to be asked...if they have a mandate to lockout, and to be told, if they have not then the point must be conceded. The attitude that has been taken up has been taken up because it was felt that the active policy that has been pursued at Erith by the Trade Unions rendered any concession that made on this question a mere prelude to the gradual displacement of all non-union hands. On the other hand, you of course know the position Messrs. Vickers are in, and what a strike at Erith would mean.

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64 EEF M(9)2; EEF, Decisions of Central Conference, 1898-1925, (1925), case 772, p.157.

65 EEF M(9)4 EEF, Central Conference, case 1648, p.355.

In the event, however, the EEF was able to persuade the ASE Executive Council to bring its influence to bear and this case too was dropped at central conference.[66] As Table 10A shows, between 1898 and 1901 the disputes procedure operated in a manner completely unfavourable to local resistance to changes in machine manning. Nearly half of the cases raised in the localities were dropped before reaching a central conference, and an equal number of appeals were dropped by the union at such conferences themselves, or referred back to a local conference; in only one case (the 1900 Dobson and Barlow dispute) was the union able to win even a concessionary formula from the employers, in this instance that employers should endeavour to avoid the displacement of skilled men when introducing new machine tools.[67]

Nor were employers' efforts to use the disputes procedure to choke off local militancy confined to changes in working practices such as machine manning or piece payment. As Brian Weekes has shown through an examination of the 1899 advance movement in Mid-Lancashire, the effect of the disputes procedure was to prevent workers from winning even routine wage advances at a purely local level. Moreover, the delays involved in the various stages of the procedure could prevent workers from taking advantage of the conjunctural movements of the trade cycle which had always given the signal for advance movements; by the time the procedure had been exhausted, the peak of the upturn might have passed and the opportunity for a rise lost.[68]

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66 Letter dated 12.10.1901 in EEF M(6)4, my emphasis; EEF, Central Conference, case 1106, p.234; ASE MJ & R Dec. 1900 and May 1901.

67 EEF, Central Conference, case 294, p.66.

68 Weekes, ASE, pp.223-26.

To maintain its policy of working within the Terms of Settlement in the face of the mounting discontent in the districts over the workings of the new disputes procedures, the ASE Executive was obliged to move quickly to consolidate its authority, particularly over local officials. Even before the lockout, Barnes had displayed a disposition to limit local autonomy in important question of trade policy when faced with organised employer pressure, as in the Clyde-Belfast dispute, when he had compelled the Belfast men to return to work against their will.[69] After 1898, Barnes soon found himself at odds with several of the union's Organising District Delegates, who, though formally responsible to the Executive, were elected by the districts and developed a particular animus against the disputes procedures, not least because of their exclusion from central conferences.[70] After several such squabbles, the Executive Council began proceedings in November 1898 to suspend Rose and Ratcliffe, the ODDs for Mid-Lancashire and the Northeast Coast respectively. The Executive's charges make clear the element of localism involved in the dispute:

> Certain Organising District Delegates...have been spending their time and energies in undermining the authority of this council, and inciting the members to refuse to be bound by its decisions.

In this context, the Executive Council was prepared to defend the ODDs' exclusion from central conferences with the employers:[71]

> During last year they took part in several of the Conferences, and they could not - or at any rate, did not then - divest themselves of the character of local officials; but on the contrary, were constantly talking of 'their division' and 'their constituents' thus making it perfectly clear that at an Executive Conference the good of the Society as a whole was of little moment compared to the good will - and votes - of that section of it upon which they were directly dependent.

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69 See above, pp. 80-81, 189-90.

70 EEF, Central Conference, case 293, p.66.

71 ASE, Suspension of Organising Delegate, Division No. 2, 12.11.1898.

While Ratcliffe apologised to the Executive and was therefore permitted to retain his position, Rose adopted a less conciliatory stance and his suspension was upheld by a membership ballot, though he was allowed to resume office when reelected by his district the following year.[72]

It should not be thought, however, that the Executive's willingness to work within the disputes procedure and to discipline local militants implied a wholly passive acceptance of the Terms of Settlement as interpreted by the employers. At each local and central conference, ASE officials fought for a more liberal interpretation of the Terms of Settlement, particularly in relation to the interpretation of the machine manning clause and the question of mutuality in piece price fixing and overtime limits. Speaking at a local conference in Oldham in 1900, for example, one ODD argued in a fashion typical of union rhetoric for this period:[73]

> ...Whilst we are well aware that clause 6 of the Agreement gives you an absolute right to do whatever you like with your machinery, still we think that most of these clauses are capable of very much broader interpretation than is given them by the Employers.... We do not think the spirit in this clause gives a right to an employer to do whatever he likes with his machine tools, the spirit of the clause really is that he is going to guard against any offensive action on the part of the union men in keeping all the machinery in their hands and preventing him from making any alteration in the machinery. I say again that regarding the letter of the law the men have no action, but we think you ought to make some provision in your workshops to avoid the bitterness arising by enforcing a clause like this.

Even George Barnes himself displayed a marked ambivalence in relation to the operation of the disputes procedure and to skilled workers' demands to control new machine tools, stemming from his dual position as negotiator with the EEF and representative of a union whose membership remained strongly committed to craft regulation. In the frequently quoted article in Engineering Magazine

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[72] Weekes, ASE, pp.218-20.

[73] 'Transcript of Local Conference, 20.1.1900', EEF M(4), 1-2.

in which he called for the grading of ASE members, for example, Barnes concluded that

> ...the real solid gain following the dispute has been the freedom from stoppage, consequent on the facilities afforded for the discussion of differences....

But the bulk of the article was devoted to detailed criticisms of the actual working of the Terms of Settlement which "run counter to the reason and sense of justice of the great mass of engineering operatives", especially in their provision concerning machinery and piecework. And in relation to machine manning he argued,

> ...It is clear to my mind that the probationary servitude of lads in Great Britain entitles them in after life to take such steps as may be necessary to protect the trade from microscopic subdivisions which would reduce mechanics to mere machine-tenders, doomed to a dull round of narrow and uninteresting drudgery.

As for the disputes procedures,

> As at present constituted they but enable each side to ascertain the strength of the other as indicated by the pertinacity with which it clings to its argumentative position, and so they lead to avoidance of disputes as much through the wholesome fear of losing money as by any other consideration.... Such 'courts' can never reconcile conflicting interests; they cannot even exhaust the means of amicable and just settlement of disputes....[74]

In 1900, therefore, having recovered from the immediate effects of the lockout, the ASE Executive opened negotiations for a revision of the Terms of Settlement in association with the SEMS and the UMWA. The unions' demands focused on six main issues: 1) the exclusion of local men from Central Conferences; 2) the interpretation of the term 'current conditions' (the Terms of Settlement provided that 'current conditions' should prevail until

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[74] 'Uses and Abuses of Organisation among Employers and Employed', Engineering Magazine Jan. 1901, pp.560-67. See also the passage quoted above, p.374.

the procedure had been exhausted, and there was a running dispute over whether this term referred to the conditions prevailing before or after a managerial innovation; 3) the practical working of the overtime limit; 4)the working of piecework; 5) the machine question; and 6) delays in holding conferences. Some of these demands, such as those for mutuality in piece price fixing and a stricter application of the overtime limit represented long-standing concerns of the Executive, but the demand for the inclusion of local representatives at Central Conferences was a clear reversal of past policy designed to placate opposition in the districts. Similarly, Barnes was careful to adopt a strong initial position on machine manning in line with the wishes of the rank and file, demanding that "machines doing a varied class of work" be reserved for skilled men, and that employers should seek to minimise the displacement of such men by the introduction of new machine tools. It is clear from the statements of Executive Council negotiators that their primary purpose in proposing these changes was to pacify critics among local officials and the rank and file, and this formed one of the main arguments for their acceptance by the employers. As one member of the ASE Executive put it:[75]

> We have to remind you that the whole of the members of the societies concerned agreed to the terms of 1898 in principle, but there have been certain interpretations given to the terms and to the constitution of the conferences, both local and central, since that date, which have not been assented to by the rank and file of the local men, and hence the need, in our judgement, for a widely representative conference at which some of these local men, at all events may be present. We have not as yet convinced these local men as to the justice of the interpretations that have been given. It remains to be seen whether an open conference would so convince them.

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[75] EEF Executive Report 229, 4.12.1900: 'Request by the ASE, SEMS, and UMWA for Amendment of the Terms of Settlement'. The Golightly quotation is on p.3. See also the Verbatim Report of Conferences between the EEF and the ASE, SEMS, and UMWA, Dec. 1900- May 1902 (1902).

In return for a more voluntary commitment to the Terms of Settlement, the employers were prepared to accept certain amendments proposed by union negotiators: the need for mutuality in piece price fixing was formally recognised and Federation members were advised that every effort should be made to avoid the displacement of old hands when changes in workshop organisation were introduced. While these changes were sufficient to win the approval of the SEMS, the ASE rank and file adopted a more intransigent stance, rejecting the revised terms by a margin of nearly two to one. This vote reflected both dissatisfaction with the details of the revised terms - which failed to offer pieceworkers a guaranteed wage - and the deep-seated hostility of ASE members to the Terms of Settlement per se.[76]

Barnes and the ASE Executive had seen their most urgent tasks in these negotiations to bring piecework fully under the aegis of collective bargaining and so to stem the erosion of the union's role in wage determination. Unlike many rank and file engineers, who associated piecework with the intensification of work and the subversion of craft solidarity, the ASE Executive Council professed no opposition to piece payment in principle, but only to the abuses associated with its practical operation. As Barnes himself put it,[77]

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76 'Verbatim Report of Conference, 20.2.1902' in ibid.; EEF General Letter 146, 6.3.1912; ASE MJ & R Feb. 1902. For an example of rank and file criticism of the Terms of Settlement, see the letter signed 'Furnessia', ASE MJ & R Nov. 1900, pp.27-28.

77 Barnes quoted in EEF Executive Report 229, 4.12.1900, p.3; cf. Verbatim Report of Conferences 1900-2, especially p.48.

> We are inclined to think that there is a good deal to be said for piecework under certain conditions.... We think that there may be some arrangement made between us by which the principle of mutuality may be here introduced, by which the collective agency of the Society may be brought behind the men, and by which the principle of the guaranteed day rate of wages may be secured to the men all over this country.... Under those conditions I don't think we have a great objection to piecework, but we do object when a man is required to make his own bargain, and where the Society is ignored, as it has been during these last two or three years.

Thus when employers began to experiment more widely with premium bonus systems after 1900, Barnes saw the conflicts generated by their introduction as an opportunity to resolve once and for all the union's economic and organisational grievances concerning piecework. Barnes was by no means oblivious to the problems raised by the premium bonus. When first confronted with American writings on the subject, he at once picked out the danger spots. Without a guaranteed day wage and a commitment from employers to the continuity of the system once introduced,

> The systems of piece and premium are used to gauge full physical and mental capacity and then to get the additional output for little over the normal day wage; and in addition, they are used to undermine the principle of a standard minimum wage by reducing day rates of the least efficient to a point below the ordinary comforts of life.

At the same time,[78]

> ...There is a new, and to my mind very sinister, element introduced in the person of the 'router' whose duties, I understand are to determine the manner and order in which different operations are to be performed. The effect of this 'routing' would be, of course, to divest the man of any right of discretion as to how he should do a job, and reduce him to a mere automation.... There will doubtless be those who will think that the author had 'rout' not 'route' in his mind when introducing this new form of 'feed and speed man'.

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[78] Letter to the Engineer, reprinted in ibid., Premium System, pp.40-44.

But when the union found itself confronted with some half-dozen disputes over premium bonus schemes to discuss at central conference with the employers in 1902, Barnes hit upon a novel strategem which most fully embodied his policy of working within the Terms of Settlement and steering the union away from craft regulation: believing the introduction of the premium bonus to be inevitable in any case, he proposed a general agreement which would embody the union's acceptance of the system in exchange for safeguards from the employers regarding its operation. Caught by surprise, the employers accepted, and the resulting agreement signed at Carlisle in October 1902 included four main provisos: 1) that the time rate of wages be paid in all cases; 2) that overtime continue to be remunerated at higher rates in the normal way; 3) that time limits once established should not be altered "unless the method or means of manufacture are changed"; and that bonus systems should not be introduced on a temporary basis. In this instance, Barnes refused to submit the agreement for membership ratification, arguing that the premium bonus did not constitute a "new condition of labour" and its introductic therefore fell within the employers' prerogatives according to the Terms of Settlement.[79]

Barnes' solution to the dilemma posed by the premium bonus reflected his more general approach to craft regulation in the light of the employers'

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[79] For the cases leading to the Carlisle Agreement, see EEF P(2)1-2; for a transcript of the conference and related documents, ibid., P(2)3, 15. The text of the agreement was published in ASE MJ & R Sept. 1902 and is reprinted in Weekes, ASE, app. III.

victory in 1898 and the new institutional structure which it had brought into being. Faced with the employers' determination to root out those vestiges of craft regulation which directly affected the organisation of production, Barnes sought to convert the demands of his members into a form which could be made acceptable to the employers by its concentration on questions of remuneration and collective bargaining. Already in 1897, Barnes had vainly sought to redefine the machine question as a problem of wage rates, pressing the employers' to negotiate a list of machines whose operators should receive the skilled men's rate irrespective of whether they were members of the ASE. This objective continued to lie behind his bargaining posture in the negotiation to revise the Terms of Settlement in 1900-1 and again in 1906-7. As Barnes advised the employers during this latter set of negotiations, "The root of the question is wages - if you would agree to pay the full rate for certain machines there would be no problem."[80]

Barnes' overall strategy was based on a theory of collective bargaining and the 'legitimate functions of trade unions' which bore significant affinities to that developed contemporaneously by the Webbs. In the name of efficiency and economic growth, trade unions should cease to contest the employers' prerogatives to reorganise production as they saw fit, concentrating instead on protecting their members against any consequent deterioration in their earnings and working conditions, and ensuring that no additional effort was

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80 'Verbatim Transcript of Conferences between the ASE, SEMS, and UMWA, 1906-7', EEF A(2)5-9, pp.95 ff.; see the remark of a like-minded candidate for a seat on the Executive Council in 1907:

> In view of the Terms of Settlement, the machine question resolves itself into the price to be paid for working the various machine.' (Quoted in Jefferys, Engineers, p.157.)

For a characterisation of Barnes' position as a 'rate-for-the-job' approach, see Weekes, ASE, pp.81-82.

demanded without increased remuneration.[81] Thus Sidney Webb himself commended the Carlisle Agreement to the membership of the ASE for its approval:[82]

> With the evils of competitive piecework in the engineering trade.... the premium bonus...provisionally agreed to seems to me an admirable expedient. The ASE may in my humble opinion, safely agree to it. The standard of time work rates is fully protected. The danger of a future cutting of rates is well guarded against.... And, what to my mind is a great advantage to trade unionism in the engineering trade, the system makes a distinct advance in rendering more accurate and scientific the working of the standard rate itself - the securing of equal pay for equal effort....

The ASE Executive's strategy of transforming craft regulation into a purely economic defence of material interests foundered both on the difficulty of separating skilled workers' market interests from their craft identity and on the inadequacies of specific arrangements concluded with employers to prevent the deterioration of their material position. In their efforts to repair their competitive position and to reap the fruits of their victory in 1898, engineering employers were determined to reduce their unit labour costs through a mixture of traditional and novel methods. Where these included the introduction of new machine tools and methods of workshop organisation, employers were rarely prepared to pay an effective premium to secure the consent of the skilled workers, preferring wherever possible to make use of the cheaper and more docile handymen. The ASE's proposals for rating the machines were not considered practical by the employers since the same machine could be used for jobs requiring radically different skill levels, depending on how it was fitted with jigs and fixtures and whether it was to be used for

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81 See Industrial Democracy, especially pt. II, and the discussion of the Webbs' views on the 'legitimate functions of trade unions' expressed at the time of the 1897-8 lockout, above, pp.204-6.

82 ASE MR Oct. 1902, quoted in Weekes, ASE, pp. 181-82.

small-batch or repetition production.[83]

Thus many ASE members found themselves competing for jobs with handymen a state of affairs whose full consequences might only become apparent in times of depression, as an ASE negotiator at Vickers' Barrow works noted in 1913:[84]

> ...While it (the placing of handymen on machine tools - jz) will not hurt us perhaps very much for the time being, when a depression in trade comes, that is the time we shall feel it. Our experience is that in times of depression the skilled men are displaced and these cheap men working tools are kept on....

Even in good times, however, the intensity of competition in the labour market ensured a high level of unemployment among skilled workers: only in one year between 1898 and 1914 did unemployment among ASE members fall below two percent.[85] Moreover, as in printing, the unemployment caused by changes in the division of labour was heavily concentrated among older workers unable to keep up with the pace demanded by the new workshop conditions; as Sir Benjamin Browne, Managing Director of the Tyneside firm of Leslie, Hawthorne, and Company and one of the leading lights of the EEF, told the Poor Law Commission in 1908: "In many trades, particularly engineering, boilermaking, and shipbuilding, men have little chance of finding a fresh situation after fifty or even forty-five."[86]

Nor were skilled workers' concerns for the future of their trade confined to the market value of their own skills; so strong was the identification of many ASE members with their craft that they expected to pass on a similar statu

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[83] See above, p.195.

[84] 'Verbatim Transcript of Local Conference, 13.2.13', EEF M(9)18.

[85] Jeffery, Engineers, p.119.

[86] RC on the Poor Laws, qs. 86,210-11.

to their sons, a prospect which the progress of technical and organisational change in the industry threatened to foreclose. Thus the bitter reply of skilled workers at one Blackburn textile machinery plant in 1911 to the managerial assertion that they should have no objection to handymen being placed on machine tools since they were in full employment:[87]

> We have children coming who want situations. What are they going to serve their time for? Labouring? Wheeling a barrow? Some of the men are throwing it in their teeth: 'what the _____ are you serving your time for?'

While the reorganisation of the division of labour in the decade after the great lockout remained patchy and uneven, leaving large spaces within which skilled workers could continue to entrench themselves, many engineering craftsmen viewed these developments as a sea change which threatened their entire future in the industry. A letter from an ASE member in Erith, where the example of the Vickers arms works loomed ominously as a signpost for the future, voiced the fears of the rank and file:[88]

> The tendency of the machine is not merely to place it out of the power of the workman to become his own employer, but to reduce him to a machine minder, which needs little skill and brains. Under the old system the workman may have worked hard and long, but he had companionship, variety, and the pleasure of seeing things grow under his hands to the finished form.... Go now into one of the big shops, covering acres of ground, where workmen are massed together, and by the aid of machinery iron is converted to its uses at a fraction of the old cost. You cannot enter without permission from the office, and even if you are permitted you must not talk to the men. Here you find men doing over and over again the same thing, passing all day long long bars of iron through rollers, turning bits of iron just the same all day long, week in week out. In the whole establishment there will perhaps not be a man who can do more than some minute part of what goes to make a saleable article. The lad learns to attend one machine, then his progress stops.... He has no more control over the conditions under which he works than a passenger in a railroad car over the motion of a train.... Causes which he cannot foresee may at any time stop his machine and put him upon the world an unskilled labourer, not used to swing a pick or handle a spade.

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87 'Report of Interview between H. Livesey and Nine Shop Delegates, 25.9.1911', EEF M(4)1.

88 Letter from W. Corkey, ASE MJ & R Jan. 1904, p.18. Cf. the description of th changing conditions of work at the Great Western Railway works at Swindon in Williams, Railway Factory, pp.302, 394.

Given the inseparability of skilled workers' market position from their craft identity, both in their own eyes and those of their employers, together with the intensity of their commitment to the defence of their autonomy and control at work, the ASE Executive's efforts to transform craft regulation into an economistic defence of its members' material interests which could be accommodated within the Terms of Settlement were unlikely to win the latter's support. Thus despite the decision of the 1901 Delegate Meeting, skilled workers as we have seen were still unwilling to open the doors of the union to the less skilled, and the new section remained in practice a dead letter. Barnes was doubtless correct when he lamented in 1907 that: "The average ASE member has indicated in the most unmistakable manner that the ASE shall remain an organisation of the fully skilled and trained men."[89] At the same time, skilled workers continued to use all the means at their disposal to retain control over new machinery; wherever possible, therefore, they refused to train the unskilled, to set up the tools for their machines, or to finish the rough work the latter had begun, often lending force to their demands with implied threats of ca'canny (go slow) or even a strike.[90] In 1904, for example ODDs reported a six month strike outside the disputes procedure at a railway works in Paisely over the employment of a machinist on turners' work, and a similar walkout at a Hull firm where machinists were employed on boring and turning tools, as well as numerous similar disputes which never reached that stage.[91]

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89 ASE AR 1907, pp.iv-v

90 The ASE Executive Council felt it necessary to issue a warning in 1904 to its members about the foolishness of ca'canny. ASE MJ & R July 1904, p.2.

91 ODD 1 (Scot.), ASE MJ & R Jan., July, 194; ODD 4 (Lancs.) ibid., Sept. 1904. The Paisley strikers were replaced by machinists, EEF M(9)7.

But while ASE members were determined that the new machine tools not be worked by handymen, they were often reluctant to work them themselves, especially on repetition production, where a prolonged spell could gradually devalue their skill; to be doing work which demanded their full skill was a symbol not only of their ability to compete for the top jobs on the open labour market but also of their self-image as craftsmen. Thus one ODD, having secured the replacement of a handyman by a turner found it necessary to observe: "It is to be hoped he will remain for a reasonable length of time at least, as if our turners refuse to work those machines, they have little to complain if handymen are put to them."[92] In fact, the dissatisfaction of fully-trained craftsmen with machine work figured as one of the employers' primary justifications for prefering handymen. By contrast to the craftsman who pursues more challenging work whenever he can find it, the handyman, one employer noted,[93]

> ...has got a bit older, and he does not see very much in front of him, and if he is given a machine he will work it for all he is worth, because it is something he has secured for himself, and he intends to stay on.

In the years following the Carlisle Agreement, local militants and district officials found themselves with greater freedom of manoeuvre on the question of machine manning than in the immediate aftermath of the employers' victory. The EEF's willingness to recommend in 1901 that skilled men not be displaced by new machinery a space for ASE negotiators at district level to

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92 ODD 2 (Lancs.), ASE MJ & R Feb. 1914.

93 'Verbatim Transcript of a Special Central Conference, 29.2.1912', EEF M(2)1, pp.72-73. See also the comment by a correspondent to the ASE MJ & R Mar. 1900, p.22: "...all my experience goes to show that once a man or a lad puts his hand to mechanism he never turns back unless forced...."

argue for wider concessions, and with the revival of confidence and militancy at the base these opportunities were taken up forcefully, especially by the ODDs. By 1904, visits to firms to protest against the employment of handymen on machines had become a routine part of the ODDs' duties - in an ordinary month of that year, for example, four of the six District Delegates reported their involvement in a dispute over machine manning.[94] Where the local balance of forces favoured the men, concessions might be made by the employers; where the reverse was true, or where the latter preferred to adopt an intransigent attitude, the question would be referred to the disputes procedure, with little hope of success. Even here, however, the experience of 1902-7 represents a marked improvement on that of 1898-1901 from the perspective of craft militancy; as Table 10A shows, ASE negotiators were no longer willing to drop machine manning appeals before they reached central conference, and were prepared on some occasions to risk the ire of the EEF by refusing to come to an agreement.[95]

But even on machine manning the local militants could find themselves sharply at odds with the ASE Executive if the EEF brought sufficient pressure to bear. The most striking case of this kind arose in Manchester in 1906. Handymen at the works of William Muir and Company were placed on turret lathes claimed by the skilled men, who in turn instructed the ASE charge hand not to train them and announced their refusal to touch work turned out on these lathes by handymen. In the ensuing negotiations, the ASE men argued that while the Terms of Settlement permitted the employers to place handymen on machines,

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[94] ASE MJ & R Sept. 1904.

[95] For examples of concessions won by the union outside the disputes procedure, see ODD 5 (Mids.), ASE MJ & R, Mar. 1904, Nov. 1904; ODD 2 (Lancs.), ibid., May 1904; ODD 4 (Lancs.), Aug.-Sept. 1904.

these did not require skilled men to follow or finish work begun by handymen. After a series of escalatory steps on the part of the management, the ASE men struck in violation of the disputes procedure, backed by the Manchester District Committee, which demanded:[96]

> ...How long this piece-at-any-price policy is to continue.... How long are the results of the debacle in 1898 to be with us? The time has arrived when the engineering industry should cease to be the happy hunting ground for handymen....

Under pressure from the EEF, the ASE Executive suspended the district officials; after a further four months on strike the men conceded, returning to work on the employers' terms.[97]

Though skilled men engaged in extensive resistance over machine manning, their bitterest ire was reserved for the new systems of supervision, labour discipline, speed up, and incentive payment. W.F. Watson records engineers' reactions to the reorganisation of work at Thorneycroft's Chiswick works in 1905:[98]

> Passive resistance and sabotage were rife...Feed and speed men, harrassed and bullied - sometimes assaulted - by the men, gave it up in despair. The charts mysteriously disappeared; men deliberately spoilt work in order to increase the speed.

A number of considerations converged to focus engineering craftsmen's resistance to the reorganisation of the division of labour on the premium bonus and the innovations in workshop management associated with it.

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96 ASE MR Nov. 1906, quoted by Clegg, Fox, and Thompson, Trade Unions, p.429.

97 EEF M(5)1; EEF, Central Conference, case 1247, p.259; see ASE MR Sept. 1906 for an explanation of the suspension by the ASE Executive Council.

98 Watson, Wage Incentives, p.12; for a description of the innovations in question see the passage quoted above, p.368.

On the most immediate practical level, many workers believed with good reason that despite the protestations of the employers the premium bonus was not in fact a wage incentive to higher productivity, but rather a simple method of work intensification accompanied by frequent and arbitrary rate cutting, just as on conventional piecework. The Carlisle Agreement, of course, contained a formal guarantee against rate cutting, but provided no institutional mechanism for its enforcement on the shop floor. Even where employers were prepared to observe the letter of the agreement, a minor change in working practice could serve as the pretext for a sharp reduction in time allowances; moreover, as a brass finisher at Armstrong's complained, the system of work measurement meant that each man's individual ability could be ascertained and those who were not quite up to the maximum standard of efficiency were weeded out, a fact which figured among the principal reasons for printers' objections to indicators on composing machines.[99] The report of the Joint Committee convened by the TUC to study the premium bonus system pointed to the core of the problem: "The interpretation of the terms which governed this system was entirely in the hands of the employers, and the workman had absolutely no redress if he considered himself unfairly treated."[100]

Wherever it was introduced, the premium bonus therefore generated a host of complaints over rate cutting and the mechanics of its operation. At the Vickers arms and marine engineering works in Barrow-in-Furness, for example, the District Committee had long been engaged in conflicts with the management

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[99] Article by C. Coleman of Battersea, ASE MJ & R Nov. 1904, pp.10-14; TUC Joint Committee, Premium Bonus, p.34; cf. also ibid., pp.31, 62.

[100] Ibid., p.73.

over the operation of piecework agreements, and oppostion to the premium bonus persisted for several years after the Carlisle Agreement. Once the system had been introduced, disputes about the details of its operation proved so frequent that an extensive shop steward system was created to protect workers from rate cutting and other abuses.[101]

But even where the premium bonus actually increased wages - the ASE claimed that 10-22% above time rates were paid on average[102] - skilled workers maintained deeper objections to the principles of the system, which they viewed as a grave threat to both the material and moral foundations of the craft community. The managerial innovations connected with incentive pay aimed at sharply reducing skilled workers' autonomy and discretion on the job, thereby threatening both the market value of their skills and their self-conception as craftsmen. Thus one writer in the ASE Journal quoted approvingly an article from one of the technical journals:

> The researches into the angles, speeds, and feeds of cutting tools have had the result in some shops of creating a new occupation, that of the feed and speed men or the route men. Their control is frequently resented, and naturally so. Their duties are to determine the cuts, feeds, and speeds for the work of each machine in the shop, so removing initiative, and to that extent responsibility from the machineman. It is, to say the least, a curious and anomalous relation, and the inevitable result of the general adoption of such a system must be to degrade the present race of craftsmen into machine minders.

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101 Weekes, ASE, pp.183-85; for similar disputes, see ASE MJ & R Nov.-Dec. 1902, Jan., Mar., May, and Sept. 1903. For the difficulties of ensuring that agreements concluded between management and national unions in fact protected engineering workers from rate cutting and intensification of work on the shop floor, see the articles by S. Ortaggi, 'Cottimo e produttività nell' industria italiana nel primo Novocento' and 'Cottimo e organizzazione operaia nell' industria del primo Novocento', Rivista de storia contemporanea (1-2, 1978).

102 TUC Joint Committee, Premium Bonus, pp.10-11.

This writer concluded:[103]

> ...The feed and speed man is a useless non-producer, a nuisance who doesn't pay his way, and the sooner employers realise this fact the better for their pockets and the better for our tempers. The aggravation also to a man who is told to increase the speed of his machine tool, when he knows he is getting the best result from the one he is using, is very great.

Similarly, an ASE turner employed on a milling machine in a Glasgow locomotive works drew out the connection between the premium bonus and changes in machine manning:[104]

> The premium bonus is a scientific method of squeezing the last drop of blood from the men.... This system increased unemployment and tended to oust the skilled workman. The employers sectionalised and speeded to a hitherto unknown extent, and the consequences was that the mechanic was being superseded by the handyman, and most men who came into contact with it condemned the system throughout.

Tom Mann located the roots of pre-war craftsmen's opposition to systems of payment by results in their fear that these would undermine the egalitarian and mutualistic structure of the craft community:[105]

> Judging by lengthy experience, they declare that 'payment by output' demoralises the man by encouraging the selfish side of his nature, it feeds his desire to get more at any cost to bodily health, it destroys good comradeship, encourages the man to become utterly disregardent of his workmates, and feeds the avaricious and acquisitive side of his nature so that true manhood is lost.

A turner at Armstrong's Elswick works testifying before the TUC Joint Committee hearings expanded on this theme and connected the moral decline of the craftsman with the intensification of supervision:[106]

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[103] W.H.C., 'Roughing Tools for Lathe Work', ASE MJ & R Oct. 1910, pp.36-37.

[104] TUC Joint Committee, Premium Bonus, p.28.

[105] Tom Mann, 'Payment by Results' (1920), p.4.

[106] TUC Joint Committee, Premium Bonus, p.40.

> The bonus system in my contention, is the worst system that has ever been introduced into a workshop. It does not benefit the working man any; it has made him selfish, dishonest, and taken his social position as a trade-unionist from him. His head is never lifted up from going to work til coming from it, except at meal times. He has to contend with restricted times, also with the foreman interfering with his tools and feeds and speeds. Factory life is practically unbearable with the present day system. There will always be unemployed under its existence and the employer does not intend to pay extra for his labour if he can get off doing so. It is as bad as the Jewish sweating system. I can tell by experience what it means is the survival of the fittest, as youth will outdo old age, and I might mention that we will be old sooner under present conditions.

The report of the TUC Joint Committee in 1909 summarised skilled workers' objections to the premium bonus in seven points:[107]

1. It destroyed the principle of collective bargaining, substituting individual bargains between workers and employers and lent itself to rate cutting;
2. The system "to a large extent abolished craftsmanship by training vast numbers of specialists who are not eligible for membership of the various engineering trade unions;"
3. It promoted unemployment;
4. It led to 'scamping' of work and the decline of pride in craftsmanship
5. It prevented proper training of apprentices;
6. It promoted selfishness in the workshop;
7. It encouraged workshop favouritism and victimisation of resisting craftsmen.

The intensity of engineering craftsmen's hostility to the premium bonus quickly brought them into conflict with the ASE Executive. The Carlisle Agreement provoked a barrage of hostile criticism from the districts, especially those which had been fighting against the introduction of the premium bonus on a shop by shop basis and felt betrayed by the Executive's action. Mass meetings

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[107] Ibid., p.73.

against the agreement were held up and down the Northeast Coast, and letters attacking the premium bonus became a staple feature of the ASE Journal's correspondence columns; by 1909 opposition to the premium bonus was de rigeur for successful candidates for the Executive Council.[108]

Rank and file resistance to the premium bonus might actually draw the union Executive into a dispute on the side of the employers, as at Vickers' Barrow works in 1905 when the Executive Council upheld the dismissal of several activists over the objections of the District Committee.[109] But the dispute over the premium bonus, which brought the rank and file and local officials into the sharpest confrontation with the ASE Executive erupted at Vickers' Erith works in 1907. This plant run by Maxim-Nordenfeldt until 1897, was a large gun factory employing 4,500 men at the height of the Boer War and 3,000 when the dispute broke out. When Conradi, an agressive new-style manager who had reorganised Thorneycrofts Chiswick works in 1905, attempted to have inspectors price jobs at Vickers, the Erith District Committee threatened a strike, as it had over machine manning in 1901.[110] In the face of intense pressure from the ASE Executive Council which precipitated the temporary resignation of the district officials, when Vickers actually introduced the bonus system, the ASE men struck, to be rapidly joined by the other craft unions in the plant.

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[108] Weekes, ASE, pp.207-11; ODD 3 (Northeast), ASE MJ & R Oct. 1902; for cases of opposition to the premium bonus, see ibid., Mar., June, Nov., Dec., 1901, Jan.-June 1902.

[109] Weekes, ASE, pp.183-85.

[110] See above, pp.377-78.

Despite its opposition to the movement, the ASE Executive Council was compelled by a 1904 decision of the union's Final Appeals Court to pay benefits to the strikers.[111] Initially, the Erith strike seemed destined for success: all the skilled men came out, as did the unskilled, and even the foremen who resented the usurpation of their prerogatives by the feed and speed men; the strikers were also supported by the press and by the influential Labour minority on the local council, so that they were able to restrict blacklegging to a minimum. But without the active support of the ASE Executive the strikers found it difficult to make much progress with their demands. Six months later, the strikers were still voting not to return to work unless the premium bonus were withdrawn, while the firm refused to reopen on those terms. The ASE Executive Council then persuaded the Vickers management to suspend the premium bonus and reopen pending further negotiations.

As trade conditions worsened, weakening the shop-floor bargaining position of the skilled men, Vickers gradually reintroduced the system, victimising militant unionists in the process. While according to a letter procured by a company spy, the workers continued to regard the premium bonus as "...the Greatest Tyranny that has ever been thrust upon workers since slavery was abolished", by 1909 it had been reestablished in the Erith works. The union Executive, considering itself bound by the Carlisle Agreement, stood idly by, and when the Erith District Committee issued a circular to other districts condemning the Executive Council's action, its members were suspended. This Executive action was immediately overruled by the Final Appeals Court, and the 1909 Delegate Meeting of the same year forbade the Executive Council

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[111] See below, p.402.

to take a dispute to a central conference without the local District Committee's consent. It was not until 1913, however, after a constitutional crisis had produced a completely new Executive, that the ASE would officially disavow the Carlisle Agreement.[112]

The ASE Executive's support for the Terms of Settlement, coupled with its stance on the premium bonus and machine questions, brought it into repeated conflict with the District Committees and local militants over control of trade policy, conflicts which in the context of the union's democratic structure would lead to the eventual disintegration of its authority. But the crucial turning points in this growing confrontation between the union's Executive and its local officials and militants were marked by the disputes over wage reductions on Clydeside in 1903 and on the Northeast Coast in 1908. Before 1898, skilled engineers had generally relied on industrial pressure applied through the District Committees to secure wage advances in boom years and to resist reductions in slumps. After the lockout, however, employers sought to use the dispute procedure to avoid granting rises by referring the matter to Central Conference. As we have seen, this led to conflict between the Executive Council and the districts, as the men threatened strike action as a result of lengthy delays, while the Executive Council restrained them in the face of the implicit threat of a lockout by the EEF.

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112 This narrative is based on Weekes, ASE, pp.185-200; see also TUC Joint Committee, Premium Bonus, pp.50-53. The EEF case file P(2)12, has been poorly microfilmed and is illegible, though Weekes summarises its contents.

In the years between 1898 and 1903, a period of unbroken good trade, the ASE on Clydeside sought wage rises three times, only to see its demands frustrated in conference. Hence when with a downturn in trade conditions in 1903 employers proposed an immediate wage reduction, the local unionists, along with those on the Northeast Coast, voted by heavy margins to resist any such cuts.[113] The Executive Council ordered ASE members to continue working under the reduced rates pending a Central Conference, but the Glasgow men struck anyway in May 1903. George Barnes ordered the men back to work and personally visited the area to press this position, where at a mass meeting of strikers he was howled down and generally abused.[114]

Barnes, believing that the Clydeside strike represented "rebellion... the first serious revolt against the terms of agreement made at the close of 1897-8" and taking his stand on the absolute supremacy of the Executive in financial matters, suspended strike pay and forced the District Committee to support a call for the men to return to work.[115] At this point, direction of of the strike passed largely into the hands of unofficial workshop-based vigilance committees, which had played a significant role in the conduct of the 1897-8 lockout on Clydeside. These unofficial bodies, defending their actions on the basis of ASE rules guaranteeing local autonomy, were able to spread the strike to the neighboring districts of Greenock and Paisley; by the middle of May, however, the exhaustion of their funds had forced the strikers back

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113 Croucher, Local Autonomy, pp.20-22; Weekes, ASE, pp.227-28.

114 Barnes, Workshop to War Cabinet, p.62; Croucher, Local Autonomy, pp.24-26; Weekes, ASE, pp.228-30.

115 Engineering 6.5.1903, quoted in Weekes, ASE, pp.229. See also the quotations from Barnes' statements to the Glasgow press in Croucher, Local Autonomy, pp.26-27.

to work.[116]

Rather than pursue a conciliatory policy toward the strikers after their return to work, the Executive demanded the return of all strike benefits paid out during the strike, an act certain to alienate the strikers as a body. At the same time, opinion in the other districts ran sharply against the Executive Council; the Newcastle District Committee expressed these sentiments most acidly in a circular which connected the wage cut and premium bonus issues:[117]

> ...We are of the opinion that there are no heaven-born leaders in the vicinity of 110 Peckham Road, London, and we also believe that a course of workshop practice under the 'premium bonus' system, accompanied by 'feed and speed' methods, would actually stimulate them to such an extent that it is possible they might become useful members of the Society. We hope they may have the opportunity of obtaining the necessary stimulus at the earliest possible date.

In the elections that followed, the three sitting members of the Executive Council up for reelection were defeated by comparatively unknown candidates, largely on the strength of massive opposition votes from Clydeside and the Northeast Coast. This debacle for the Executive Council was capped by the Final Appeal Court's ruling in 1904 that the Executive, whatever the wisdom of its policies, had no authority to withdraw dispute pay from strikers.[118]

By the eve of the 1908 Northeast Coast strike, the hold of Barnes and the ASE Executive over the union had already become tenuous. Barnes had

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116 Ibid., pp.25-33. Shop Steward organisation appears to have been unusually well developed on the Clyde at this time: in July 1902, for example, the ASE ODD reported three city-wide meetings of stewards in a single month. ASE MJ & R July 1902.

117 Newcastle Evening Chronicle, 7.2.1903, quoted in Croucher, Local Autonomy, p.35.

118 Weekes, ASE, pp.236-43; Croucher, Local Autonomy, p.34. On the role of the FAC, which met every two years with half as many members as a Delegate Meeting, see Weekes, ASE, pp.210-15.

become overtly committed to a conciliatory strategy which brought few evident returns either on the shop floor or in the pay packet and had become identified in eyes of the membership with the premium bonus and the hated Terms of Settlement. In 1907 Barnes had negotiated a revision of the Terms of Settlement along the lines projected in 1901, transforming them into 'Terms of Agreement'; though he was prepared to argue that they had been "on the whole, productive of some good" and "as now amended have secured to the members solid material advantages...I do not say they are perfect, but they are, at all events, moderately fair...", he did not dare to submit them to the membership for ratification.[119] An indication of the extent to which Barnes had moved out of touch with the feelings and aspirations of not only the rank and file, but also of most union officials, was his willingness to defend the employers' interpretation of the 'current conditions' clause which allowed managerial innovations to stand pending the results of the disputes procedures:[120]

> I believe that the initiatory discretion of the employers in regard to minor matters is a necessary condition of any terms of agreement. Pending settlement, somebody must say what, under certain circumstances, must be done, and it seems to me that that somebody must necessarily be the employer.

In the same year, ASE members rejected a compromise negotiated by the Executive Council with the EEF which would have secured the 51 hour week in exchange for acceptance of the one break system.[121]

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[119] ASE AR 1907, pp.iv-v; the text of the revised agreement appears in A.I. Marsh, Industrial Relations in Engineering (Oxford, 1965), app. C2.

[120] ASE AR 1907, p.v.

[121] See EEF Executive Minutes 1905-7, passim; Weekes, ASE, pp.246-50.

Barnes had characterised the dispute on the Clyde as the "violent clashing of two antagonistic principles; centralised authority and local autonomy", and the 1908 Northeast Coast strike involved a similar contest on a larger scale.[122] As we have seen, the Appeals Court ruling had prevented the Executive from suspending dispute pay to unauthorised strikers in 1904. Hence when the ASE men of the Northeast voted to strike against a proposed wage reduction in 1908, the Executive had limited powers at its disposal to restrain them, despite its vehement opposition. Infuriated by ten years of frustrated wage advances and the erosion of craft regulation, as well as by unemployment figures reaching 40% in the marine sector, the ASE rank and file struck solidly under the aegis of the District Committees in February 1908.

By the end of March, Barnes found himself unable to compel the men to return to work, and in desperation demanded the convocation of a special Delegate Meeting in hopes of amending the union's rules to enhance Executive control over strike policy. When the rest of the Executive Council, aware that any such meeting would be irreconciliably hostile to further infringements of local autonomy, refused his request, Barnes resigned. Because the Northeast Coast District Committees continued to support the strikers, in contrast to the pattern on the Clyde, no unofficial organisation developed. But though the strike remined solid through September, the combination of poor trade conditions, lack of national union support, and the employers threats to unleash a general lockout eventually forced the men to accept the reduction.[123]

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122 ASE AR 1903, pp.iv-v.

123 Weekes, ASE, pp.250-66; Croucher, Local Autonomy, ch.2. For the EEF's role in the dispute, see its Minutes 1908, especially 18.8.1908, and 8.9.-1908. Barnes was not actually permitted to resign but was dismissed by the rest of the Executive Council on the pretext of election irregularities. Weekes, ASE, p.264. For Barnes' subsequent parliamentary career, which saw him become first a dilution commissioner and then a member of Lloyd George's war cabinet when Henderson and the other Labour ministers resigned over the abortive Stockholm peace conference, see his Workshop to War Cabinet, and the article in the Dictionary of Labour Biography.

Barnes' resignation marked the effective end of attempts by the ASE Executive before the First World War to create a framework of centralised collective bargaining which would eclipse local autonomy. Barnes refused to govern the society any longer in its present form: the conflict between the democratic structure of the union, in which final authority rested with bodies directly elected by the rank and file, and the requirements of a powerful Executive seeking to bargain for its members within the Terms of Settlement must be resolved in favour of the latter. As he wrote in his resignation message:[124]

> The Northeast Coast men...had become possessed of a notion that they had to 'work out their own destiny', to use a foolish notion much mouthed by them; their minds had been warped by statements that I ...had been induced to take the employers' side of the case, and they therefore voted in the main on a feeling of resentment that had been fostered among them....If trade union officials are to be flouted without due rhyme or reason - and this will apply to local as to central officials - then the effectiveness of trade unionism as an agent for labour will be weakened and collective bargaining undermined.... Employers may well decline to treat with them or regard them as representative.

In the context of the employers' determination to use the Terms of Settlement to press forward a militant assault on craft regulation at the same time as a hard line on wages, and to evade the spirit of the Carlisle Agreement, the strategy of Barnes and his Executive was doomed to failure. Given the entrenchment of local autonomy in the institutional structure of the union and skilled engineers' determined defence of their craft status, the joint pressures from the EEF and the union Executive to centralise authority over policy making in the hands of the Executive Council resulted

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[124] ASE MR Apr. 1908, quoted in Croucher, Local Autonomy, p.51.

in the disintegration of the latter's authority while rank and file resistance to the reorganisation of the division of labour continued to the local level.

## The Resurgence of Craft Militancy 1909-1914

After George Barnes' resignation as General Secretary, the disintegration of Executive authority in the ASE accelerated. For several years thereafter, his former colleagues on the Executive Council attempted to carry on with his policies, but the movement against them of opinion among the rank and file and local officials - spurred on by the greatest boom in the British economy since mid-century - ultimately proved irresistible. In the end, this revolt from below precipitated the wholesale removal of the old Executive and its replacement with a new one whose members were far more in tune with the feelings of the rank and file and committed to the revival of craft regulation in defiance of the Terms of Settlement.

Despite the evident hostility of ASE members to the strategy of working within the Terms of Settlement envinced by the 1903 and 1908 revolts on Clyde and Tyne, the ASE Executive continued its attempt to channel rank and file grievances into forms which did not challenge the new structures of industrial relations created in 1898. On the machine question, for example, the Executive urged ASE members to accept the inevitability of technical change and to seek redress of their grievances in the political rather then the industrial sphere. As an editorial in the union's Monthly Journal in February 1909 argued:[125]

> It is well-known that some industries have been entirely crushed out, whilst others have been revolutionised by the introduction of machinery, and although the making of machinery is not likely to lessen, the

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[125] ASE MJ Feb. 1909, pp.5-6, my emphasis.

> engineer is now realising that he, too, is being 'hoist with his own petard'. He is being largely evolved into a mere attendant or looker-on, tending or watching the machine which now - as if possessed of intelligence - automatically takes the place of skill, and produces the parts and mechanism of other machinery with mathematical accuracy.
>
> The great benefit which machinery was heralded as bringing to the workers has not been realised. The labour 'saving' up till now has not been the easing of the worker's burden, but too often the saving of his labour altogether, so that he has to stand, or be cast aside as a superfluity....
>
> Labour-saving machinery must be used to lessen not lengthen the hours and stress of labour, and the State will need to more and more interfere in the usage and control of machinery, and incidentally to preserve the arts and crafts, and to ensure that the inventive genius of mankind shall not be to the undoing, but to the building-up of the race.

Similarly, when the Erith District Committee issued a circular denouncing the premium bonus in 1909, the Executive suspended its members, a decision which, as we have already seen, was reversed by the Final Appeals Court.[126]

Opposition to Executive policies on machine manning and the premium bonus was given a great fillip by a crucial tactical error on the part of the Executive Council. Realising that local disputes over small advances and reductions in wages represented a major threat to its authority, the Executive Council in 1909 signed a series of long-term agreements with regional employers' associations, freezing wages for five years in areas like Hull, Barrow, Sheffield, and London, and for three years in Manchester and Newton.[127] Unfortunately from the Executive's point of view, the years between 1911 and 1914 witnessed one of the greatest booms and explosions of labour unrest in

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[126] See above, p.399.

[127] Weekes, ASE, p.266.

British history. The ASE, which had possessed some 83,500 members in 1898 and 107,000 in 1907, jumped to over 174,000 in 1914; the trade union movement as a whole doubled in size from 2,022,000 in 1900 to 4,145,000 in 1914.[128]

Thus in precisely that period when the tightness of the labour market was dramatically enhancing skilled workers' bargaining power, they were prohibited by union agreement from seeking to increase their wages, which had been falling relative to prices in the general inflation since 1896.[129] The frustration engendered by these agreements naturally intensified rank and file hostility to the Executive, and directed their energies more strongly into efforts to revive craft regulation rather than into more economistic channels. By 1913 all candidates for General Secretary of the union actively opposed both long-term agreements and the premium bonus.[130]

The final collapse of the Executive Council's authority and of its centralised collective bargaining strategy came as the result of a conflict in 1912-13 over revisions of the society's rules that would have further limited the power of the Executive and made it more responsive to the wishes of the membership. The history of this dispute is a baroque web of petty intrigue with little relation to policy issues, and its details need not detain us here.[131] The upshot of the conflict - after a series of humiliating litigations and counter litigations accompanied by the physical eviction of the former Executive Council from its London offices - was the installation of a new Executive in 1913, committed to repudiating the policies of the old.

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128 Ibid., p.317.

129 Yates, British Engineering, p.106.

130 Weekes, ASE, apps. 7-8.

131 See Jefferys, Engineers, pp.169-71 and Weekes, ASE, ch.8, for full narrative.

In the context of the erosion of Executive authority after 1908, and the tightening of labour markets after 1911, craft militancy among ASE members enjoyed a dramatic revival. Its effects could be seen first of all in the intensification of militancy in machine manning disputes, which both mushroomed in number and proved vastly more successful from skilled workers' point of view than at any time since 1898. As table 10A shows, more machine questions were raised by the ASE through the disputes procedure between 1911 and 1914 than in the previous 12 years taken together, and for the first time ASE members began to win compromise settlements and even victories through the procedure in significant numbers; at the same time, union negotiators were rarely prepared to drop a machine manning case at any stage before the final failure to agree. The outcome of strikes on machine manning shows a similar pattern, as Table 11 indicates. Before 1912, no strikes over machine manning whose details appear in the records of the employers or the union were ever successful, even to the point of winning a compromise settlement; in 1912-13 only two of ten such strikes were failures and four were outright victories. Moreover, all previous strikes had been 'unconstitutional', (i.e., they had taken place before the disputes procedures had been exhausted and therefore without the consent of the ASE Executive); now the Executive Council sponsored three such strikes after the exhaustion of the procedure, all of which were quite successful.

In several cases, rank and file militants were able to win major concessions from large firms which had been leaders in the reorganisation of the division of labour, where previous efforts had been complete failures.

Vickers, Barrow was a large arms and marine engineering works, where, as we have already noted, opposition to the premium bonus was rife after 1898. There is considerable evidence that the management was reorganising the division of labour at the expense of skilled workers to an alarming extent during the same period. In 1905, the local ASE officials raised a complaint through the disputes procedure that Vickers was employing handymen on repetition production of parts whose prototypes were built by skilled men, and in 1911 a further complaint was lodged against the movement of turners' work from the (skilled) gunshop to the (unskilled) shell shop, and the promotion of handymen from shell to gun work; both complaints were then dropped at Central Conference.[132] By 1913, however, feeling had grown so intense among the skilled men that such resolutions were no longer possible; as one of their representatives told the employers:[133]

> We have always conceded to the Employers the privilege to man the machines with handymen, but the time is coming for a stand to be made. The turner knows that the machine question means taking away the work from him, and a stand has to be made, because of the introduction of the handymen in Vickers' firm, which at the present moment is in excess of the worst firms in the country.

Thus in February 1913, the ASE claimed all "turners' work" at Barrow for its members, excepting only fully automatic machines; the firm pressed by the tightening labour market, conceded without a struggle.[134] Similarly, at Dobson and Barlow, a large textile machinery firm which had been able to displace significant numbers of skilled men in 1900, ASE members struck in

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[132] EEF M(9)5, 18; EEF, Central Conference, cases 20 and 27, pp.10-11.

[133] 'Verbatim Transcript of Local Conference, 13.2.1913', EEF M(6)8.

[134] Ibid.

1913 to secure the reinstatement of skilled men on the construction of ring frames; in the settlement of the dispute the following year, the firm agreed to extend the use of handymen no further.[135]

This revival of craft militancy was by no means confined to the machine question, but extended to the reorganisation of the division of labour as a whole, singling out the premium bonus for special opprobrium. In 1909, the TUC had convened a joint committee to investigate the premium bonus, whose evidence and conclusions we have already had occasion to cite. But while the ASE Executive accepted the committee's negative judgment on the premium bonus, the joint movement for abolition proposed by its report never got off the ground because of the Executive Council's doubts about its practicability.[136] Meanwhile, in the changed climate of 1911-14, the rank and file and local officials began to take matters into their own hands.[137] Thus at the Vickers' works in Sheffield, a threatened strike against the premium bonus caused the firm to abandon plans for its introduction and in January 1913, the one ODD reported a major flare up of successful resistance to a 'Taylorist' experiment at Port Sunlight:[138]

> A series of conferences have been held here respecting the introduction of an American organiser at Messrs. Lever Brothers. The system to be inaugurated was on the Taylor plan, which is one of the last stages of lunacy. A mass meeting of the men engaged in the engineering department was held, and they refused to have the man, card, or system. The firm have agreed to adjourn matters until their principal returns. In the meantime, the old conditions are being worked to, and the organiser has gone. Wherever this system is attempted, action should be taken at once to put it out of existence. A mass meeting of the men, after hearing the report, were very jubilant at the result.

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135 EEF Executive Report for 1913; Central Conference, case 306, p.68.

136 TUC Joint Committee, Premium Bonus; ASE MJ Aug. 1911, pp.5-6.

137 S. Pollard, History of Labour in Sheffield, (Liverpool, 1959), p.232.

138 ODD 2 (Lancs.), ASE MJ & R Jan. 1913.

Similarly, ASE officials in the East of Scotland were only dissuaded with difficulty in 1914 from immediately implementing their resolution to prohibit their members from working under the premium bonus, while members at Armstrong-Whitworth's Elswick were eventually able to win a 1s per hour advance as a result of their demand for the replacement of the premium bonus with the payment of time and a quarter to all irrespective of the amount of work done.[139]

As Table 10B shows, the incidence of complaints raised by the ASE over machine manning and the premium bonus during this period was overwhelmingly concentrated in the older areas of union strength - Lancashire, Yorkshire, Scotland, the Northeast Coast, Barrow, and Belfast - and especially in the textile and general engineering districts of Lancashire. This does not, of course, imply that greater changes in the division of labour were taking place there than in the centres of the new industries in the West Midlands and London, but rather that craftsmen in the older areas were better placed to resist encroachments on their position. How much further the development of rationalisation had gone in some of the new industries than in the old can be seen from a dispute that arose in 1914 at the electrical engineering works of Siemens in Charlton, near London. Whereas in Lancashire skilled workers were generally seeking to keep small numbers of handymen off new machine tools at the Siemens works, the ASE was alarmed by the wholesale replacement of boys by women in the newly developing department of telephone work. Replying to the union's complaints, the firm characterised the work in terms that clearly set it off from that done in the older sectors, excepting perhaps some departments of the large arms works:[140]

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139 EEF, Central Conference, case 681, p.136; and cases 1436 and 1439, pp.298-300.

140 'Verbatim Transcript of Local Conference, 30.7.1914', EEF M(8)3, p.11.

> It is not engineer's work; it is telephone manufacture, which is quite another story. You cannot really train an engineer or a good mechanic on that class of work because the whole of the assembling even is all done by such foolproof jigs and dies in which everything must drop together that there is no fitting left or required, and no tooling.

The only response available to the ASE was a categorical opposition to women on engineering work:[141]

> ...We do feel that there is labour for women to perform in the world but we do not think that an engineering shop is a place where women ought to be.

The revival of craft militancy was not the only response of ASE members to the opportunities opened by the 1911-14 boom. The 'new unionist' current within the union, particularly those reformers associated with Tom Mann, had always been sympathetic to the principle of wider organisation based on class struggle, and the diffusion of syndicalist ideology in the context of the labour unrest gave it renewed vitality in the form of the amalgamation committees which sprang up among ASE members in 1913-14, particularly in London and Sheffield. Their leader, W.F. Watson, a Londoner who himself had not served an apprenticeship, expressed these ideas most clearly in his 1913 pamphlet 'One Union for Metal, Engineering, and Shipbuilding Workers' which argued that "just as the development of the industry tends to eliminate craft distinction, so we must eliminate craft distinction from our organisation."[142] Such views were given an added fillip by the contemporaneous explosion of organisation among unskilled and semi-skilled engineering workers, particularly in the West Midlands where the development of the new industries was most extensive. The Workers' Union, founded after 1898 by ASE dissidents, to organise all workers excluded by the craft unions, reaped the main benefit

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141 'Verbatim Transcript of Central Conference, 11.9.1914', ibid. But cf. the successful claim by skilled workers for control of milling machines on motor car work at the Coventry Ordnance Works in 1913, EEF M(8)2; EEF, Central Conference, case 518, p.105.

142 Quoted in G.D.H. Cole, Trade Unionism and Munitions (Oxford, 1922), p.44. On the amalgamation movement, see B. Holton, British Syndicalism, 1900-1914 (1976), ch.11; Hinton, Shop Stewards, pp.172-3, 178, 183, and ch.11; on Watson himself, see his autobiography Machines and Men, which is curiously silent on his political career, though detailed on his industrial experience.

growing from 5,000 members in 1911 to 143,000 in July 1914; in its strongholds this union was beginning to challenge from below the ASE's claim to work all non-automatic machine tools. [143]

But while some advanced militants in the ASE drew comfort from the progress of organisation among the unskilled, most rank and file engineers were rather alarmed at the threat of being swamped. A representative response was that of one writer to the ASE Journal: "When the membership of a semi-skilled union rises from 5,000 to 65,000 in less than four years, and nearly trebles in less than twelve months, we get dictatorship." [144] Similarly, the amalgamation movement made little real headway outside London, while the debate in the ASE Journal before the war revolved primarily around an amalgamation of craft societies rather than any alliance with the unskilled. The new section for the less skilled opened up by the 1912 Delegate Meeting remained as empty as its predecessors, and the ASE continued to be overwhelmingly a society of apprenticed fitters and turners, as every sign suggests the vast majority of its members desired. The achievement of the proponents of a class strategy within the union thus was to have laid the groundwork for the fragile and momentary alliance with the unskilled that James Hinton has discerned in the wartime shop stewards' movement rather than to have converted their fellow members away from craft exclusiveness. [145]

The resurgence of craft militancy can be traced quite clearly through the growing assertiveness of the Organising District Delegates, who became ever

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[143] Hyman, Workers' Union, chs.2-3.

[144] ASE MJ & R Jan. 1914, p.85.

[145] Jefferys, Engineers, p.127; Hinton, Shop Stewards.

more closely identified with rank and file resistance to the reorganisation of the division of labour. Whereas in the immediate aftermath of the 1898 lockout their participation in machine manning disputes had been somewhat sporadic and tentative, the ODDs' language now betrayed a new confidence and spirit of aggression. Thus in August 1912, one ODD who had secured the dismissal of a handyman placed on fitters' work in a Preston factory wrote:[146]

> I sometimes wonder what the engineering industry would be like if we did not take this question up. The duty of a trade union should be to protect the trade and not conserve its bank balance.

Similarly, another ODD described his actions in defence of skilled workers' position in the division of labour with a peculiar mixture of the rhetoric of class struggle and craft conservatism:[147]

> I find that in every attempt at an improvement of our conditions that employers oppose us by all the means in their power and never appear to willingly grant any concessions to the workmen. All the talk about our interests being identical is just so much piffle, and they prove it on every hand by their irritating actions in every workshop in the way of reductions in prices, manning of machines, etc., and which all goes to show that it is only by a strong combination that we can hope to in any way improve our conditions.

Thus by February 1914, one ODD could tell the EEF leaders assembled at a Special Central Conference that,[148]

> Our own practical experience (as ODDs) has made us sympathise with the desire or demand of our members for the abolition of these present Terms of Agreement, because they have come to be regarded by your side as a charter of immunity, and as far as we are concerned they are regarded as a bond of servitude.

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146 ODD 2 (Lancs.), ASE MJ & R Aug. 1912.

147 ODD 7 (London), ASE MJ & R Jan. 1914.

148 Ryder (ODD 5, Mids.) to 'Special Central Conference, 13.2.1914', p.37, EEF A(4)6.

Even in the case of the District Committees, which had always maintained close ties with rank and file resistance, there was an erosion of past differences into a joint front of craft militancy: thus in June 1914 it was reported that a coalition of the Glasgow DC with the Vigilance Committees which had recently received official recognition from the ASE in the shipyards had driven large numbers of non-unionists into the ASE.[149]

This growing participation of union officials in the resurgence of craft militancy was by no means confined to the District Committees and ODDs. With the election of a new Executive in 1912-13, the highest levels of the union hierarchy began to assume an active role in the defence of craft regulation. The new Executive Council was elected more on the basis of opposition to the old Executive and of general slogans about 'militancy' and 'democracy' than on the basis of any coherent policy. J.T. Brownlie, who became the new Independent Chairman (roughly equivalent to the old post of General Secretary) in his election address presented himself as "an experienced worker for social and economic emancipation", and attacked the "pernicious method of premium bonus and long-term agreements". Though a majority of the new Executive Council were members of the Labour Party, and several, including Brownlie were socialists, none proposed alterations in the craft basis of the ASE; their industrial orientation was to the defence of skilled workers' craft status rather than any alliance with the unskilled on a class basis.[150] As Brownlie outlined his vision of the industry's future in August 1913:[151]

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149 ODD 2 (Lancs.) ASE MJ & R June 1914; ASE Executive Council Minutes, 13.12.-1914, cited in Hinton, Shop Stewards, p.104.

150 Weekes, ASE, pp.244-47, app.7.

151 ASE MJ & R, Aug. 1913.

> I am one of those that hunger for the time when we will no longer be mere cogs in the wheels of industry, but when there will be master workmen taking a pride in their craft, and when the work left their hand it could stand on the table of the museum in the mechanics' institute.... Today they were not making craftsmen but were destroying all the artistic spirit in their nature, and sacrificing their inner feelings on the altar of capitalism.

With the multiplication of machine manning cases in 1911-12, the old Executive Council had been forced to convene a Special Central Conference in February 1912 to discuss revisions in Clause 7 of the Terms of Agreement (Clause 6 in the original Terms of Settlement). As the ASE negotiators told the employers:[152]

> It has become so serious that the members in our Society by resolutions of their branches and strong protests against the movement of this clause to the detriment of the skilled artisan, and...we had some difficulty in keeping down what we considered was eventually to develop into a revolt of the members against these Terms of Agreement.

Accordingly, the Executive Council proposed new safeguards for the skilled men including the rating of machines and a special apprenticeship for machinists; these were rejected by the employers and the conferences broke up without achieving any results.[153]

A few months later, when the rank and file revolt they had feared swept the old Executive from power, the first act of the new Executive Council was to ballot the membership on the abolition of the Terms of Agreement and the Carlisle Agreement, proposals which obtained huge majorities from the rank and file.[154] At the conference with the employers which followed, Brownlie

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[152] Transcript of Special Central Conference, 29.2.1912', p.6, EEF M(2)1.

[153] Ibid.; for details of proposals by each side, see EEF General Letter 146, 6.3.1912.

[154] Weekes, ASE, p.354.

set out clearly his identification with the concerns of the skilled men, arguing for a revival of apprenticeship in the most forceful terms:[155]

> I recognise the trend of modern industry and I recognise...that there is a considerable amount in the argument that...machines have become so simplified today that a man with very little training is able to turn out work of a class very efficient indeed. I recognise also that that has a tendency to bring down the wages of the better skilled women in many particulars. With a desire to get back as far as modern industrial conditions will permit to the old medieval system where a boy was trained to be an efficient craftsman and get back to some system of apprenticeship...we feel that something might be done in the future, whether we have Terms of Agreement or not, to put an end to this source of irritation and annoyance whereby young men can be trained from a particular age, although it may be a later age at which the boy is sent into the workshop to serve his apprenticeship, whereby they could be trained, and that we would have some control over the manning of these machines, having regard to the welfare of all those concerned, and that in the course of time we would, as far as possible eliminate what is known as the handyman by some workmen.

While in the heyday of George Barnes' reign, the union had been inclined to accept the argument that the long-term effect of mechanisation would be to increase the volume of employment for skilled workers, the new Executive took its stand with the rank and file:[156]

> The long view has been pointed out to us with regard to the manning of machine tools, and we have been told time and time again that in the long run it will be all right, that while these machine tools are being utilised by semi-skilled labour at the present moment, ultimat-ly the result would be that there would be more and more machines and more and more engineers required.... I want specially to submit to the employers of labour that while you may take a long view of this case in an abstract way, it is useless going to your fellow workman and telling him that this will work out in the long run to the advantage of the working classes in the engineering trade. They are up against the fact and they believe that it means to them in the near future the displacement of their labour, and as workers they are anxious to serve their interests as skilled men. It is all very well for them to tell us at the present time it is not bearing very severely on a skilled artisan in the workshop, but immediately a depression of trade comes round, it is the skilled and highly paid man that is going to go by the board.

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155 'Special Central Conference, 13.2.1914', pp.7-8.

156 Young to ibid., pp.19-20; for the opposing view, see F. Rose (ODD 2, Lancs. 'The Effects of Labour-Saving Machinery', Engineering Magazine, Mar.1904, pp.836-45.

At the end of 1913, therefore, the ASE Executive issued three months' notice of the unilateral termination of the Terms of Agreement and the Carlisle Agreement, while demanding that negotiations be opened for the 48 hour week. But the new Executive Council like its predecessor found itself constrained by the need to establish some modus vivendi with the powerful EEF, and as a result while the revocation of past agreements was carried out, the Executive concluded a new agreement with the employers covering only the procedure for avoiding disputes. Some of the union's grievances about the procedure were eliminated in the new agreement - notably the delays in holding conferences were reduced - and this was presented to the rank and file as an interim, rather than a binding agreement.[157]

The dramatic resurgence of craft militancy in the ASE from 1908 onwards posed a major challenge to the strategy developed by the EEF in the years following the 1898 lockout. Conscious of their overwhelming strength and of the determination of the ASE Executive under Barnes to work within the Terms of Settlement, the Federation had generally refrained from open threats of a national lockout, preferring to isolate local resistance by bringing informal pressure to bear on the union leadership and by offering financial support to the firm concerned. Rule 48 of the EEF Constitution stipulated that "any member of a Federated Association who suffers a loss by the adoption of any measure necessitated by the Board shall be assisted by the Federation in such

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157 EEF Executive Minutes 7.2.1913, 16-17.4.1914; Weekes, ASE, pp.355-59; for the text of the new agreement, see Marsh, Industrial Relations in Engineering, app. C3.

manner, and to such extent as the Board may decide," and the normal practice was for the Special Finance Committee to make grants to the affected firm from funds contributed by outside sympathisers in 1897-8 up to 45% of the wages of the men on strike, though larger payments might be made in special cases.[158] The rationale of this strategy was clearly set out in a memorandum distributed to the members of the EEF Executive Board in 1913, just as its efficacy was being called into question by the movement of events:[159]

> It has been found of great value in certain cases to restrict the dispute to the shop in which the question has arisen, with a view to maintaining the employers' position by making the Union lose the shop or at least be compelled to return on less favourable conditions than those on which they went out. So far, these tactics have been satisfactory and a general lockout has been avoided, but as you can appreciate, it is necessary in such cases for the Federation to undertake considerable financial obligations.

The success of the employers' strategy in the short-run can be gauged from the results of unconstitutional strikes shown in Table 11: as we have noted, prior to 1912, ASE members had never been successful in any strikes over the machine question, nor had they been able to win greater satisfaction through the disputes procedures. But in the context of the enhanced opportunities for craft militancy at the base afforded by the 1911-14 boom, coupled with the installation of new Executive committed to the defence of craft regulation, major cracks began to appear in the employers' strategy.

The changed balance of forces can be read quite clearly in the outcomes of strikes and questions raised through the disputes procedures for the period, but the transformation of the situation on the ground can perhaps best be

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158 EEF General Letter 171, 30.4.1913; Emergency Committee Report, 75, 30.4.1913

159 'Memorandum to Members of the EEF Executive Board', 29.11.1913, EEF M(2)1.

appreciated through a brief glance at one of the more important disputes over machine manning in these years, which occurred at the Blackburn textile machinery works of Henry Livesey and Sons between 1911 and 1913. Already in 1899 Livesey appears to have been a relatively aggressive employer for the district, and the local ASE men brought a case against him under the disputes procedure for placing labourers on turret lathes, which was dismissed at central conference.[160] In March 1911, ASE members in the plant began to complain that Livesey was placing handymen on centre lathes, still the heartland of the turner's territory; equally ominous, in their eyes, was the creation of a separate 'automatic shop' in a building set apart from the main works into which the turners were refused entry. As the men declared at a local conference the following month: "We think the whole policy of the firm is to do away with skilled workmen altogether, and train up these handymen as a special and favoured class of workmen at our expense."[161] The ASE later introduced figures showing that the firm had progressed from producing 90 looms per year with 40 turners in 1901 to 290 with 95 in 1911, a remarkable jump in productivity in ten years and, in the eyes of the skilled men, a displacement of 150 turners despite the increase in their absolute numbers.[162]

A series of local and central conferences in 1911 and early 1912 produced no result, as neither side was willing to offer any concessions; where previously the ASE Executive Council would have caved in at this point, the changed climate of opinion within the union made this course impossible,

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[160] EEF M(4)1; EEF, Central Conference, case 225, p.49.

[161] 'Verbatim Transcript of Local Conference, 12.4.1911', EEF M(4)1.

[162] 'Verbatim Transcript of Central Conference, 3.15.1911'; 'Verbatim Transcript of Joint Local-Central Conference, 13.9.1911', both in ibid.

and the Livesey case figured among those referred to the abortive 1912 conferences on the renegotiation of Clause 7 of the Terms of Agreement. Finally, with all procedures exhausted, the men struck in August 1912. Livesey had all along insisted that a strike would prove disastrous to his firm, which was behind orders at the apogee of the boom, and stood to lose a crucial contract with the Northrup Loom Company, on which it depended for its main business. Consequently, Livesey was extremely reluctant to risk a strike, which he was convinced he could not win even with EEF financial support, and it required the full force of the Federation's influence to avert an immediate capitulation on his part. While the total amount paid to the firm remains obscure, the Federation's Emergency Committee voted to consider Livesey's a "special case", enabling it to be subsidised beyond 45% of its wage bill.[163] As the strike wore on, the firm became increasingly desperate under pressure from its contractors; when a compromise settlement negotiateed by the EEF and ASE Executives was rejected by a ballot of the men in November, Livesey wrote to the Federation: "We can see nothing but call for a general lockout of the trade, for if we have to be closed down any longer we might just as well close up the business entirely."[164]

The ASE Executive favoured a compromise settlement which removed the handymen from most of the machines, but the local men, supported by the district officials and the ODD, were holding out for control of all the machines in the automatic shop other than four purely automatic ones. When a second

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163 Letters from Livesey to A. Smith (Secretary, EEF), 13.5, 2.8, 7.8, 27.8, 9.10, 23.10.1912; Smith to Livesey, 14.5, 23.7, 17.10, 24.10.1912; 'Memorandum of EEF Emergency Committee', 30.8.1912, Emergency Committee Report 75, 8.8.1912, EEF M(4)1-2.

164 Livesey to Smith, 1.11.1912; for pressure from customers, see ibid., 23.8, 26.8, 23.10.1912, in EEF M(4)1-2.

meeting rejected the settlement, the Executive was then powerless, as union rules established as a result of the earlier struggles over local autonomy stipulated that once a district had been given power to strike, only the men concerned could call it off; as one Executive Council member told the EEF on the telephone, "the Council think the best thing that they can do is to leave the men severely alone."[165]

At this point, the EEF felt that a dramatic escalation of the dispute had become unavoidable. The compromise settlement offered to the ASE Executive Council was withdrawn, and the firm announced its intention to sell all the semi-automatic lathes and replace them with fully automatic ones uncontested by the skilled men; meanwhile the places of the strikers were filled with blacklegs recruited through the Shipping Federation.[166] The employment of non-union strikebreakers, however, merely widened the strike: in the context of the labour unrest of the period, none of the labourers or handymen already employed by the firm would touch work performed by blacklegs, and efforts were made to enrol the latter immediately in the UMWA and the Gasworkers. Meanwhile, the EEF reported incidents of mass picketing, threats to the families of foremen and blacklegs, as well as the menace of 'peaceful persuasion' against the men in the automatic shop unless they joined a union. In this context, not only was it "found necessary to employ special men to protect the works and the men, the latter being housed and fed in the works," but "the workmanship of the fitters and turners taken on was not on the whole very satisfactory." By late November, the employment of blacklegs had so inflamed trade union tempers that the firm was threatened with a strike by the remaining

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165 'Verbatim Transcript of Joint Conference between the ASE and EEF Executives and Local Committees, 30.10.1912'; Livesey to Smith, 1.11.1912; 'Memorandum of EEF Emergency Committee' 4.11.1912, ibid.

166 Smith to Livesey,19.11.1912; EEF Emergency Report 89, 7.11.1912: "It appears that the Shipping Federation keep a large stock of beds and bedding ready for instantaneous use. They also keep a staff of alterers and cooks who are sent to the districts as required." Ibid.

trades still at work, from the moulders down to the labourers, unless the strikebreakers were immediately removed.[167]

With the failure of the employers' tactics to unblock the situation, a new conference was convened under the auspices of the Mayor of Blackburn in December, and the firm was persuaded to offer a guarantee that Clause 7 would be interpreted generously in the future, in addition to the following compromise: 1) that a fitter be placed in charge of the disputed machines; 2) that apprentices be placed on some of the lathes; 3) that the centres be removed from all capstan lathes except those reserved for turners' use, thus ensuring that these could no longer be used for skilled work. According to the report of a spy who attended the strikers' meeting, the district officials returned from this meeting claiming victory, and advised the men that "at last they had obtained not all but as much as they possibly could do under the circumstances...", as the conditions agreed "had given them greater privilege than they had ever had in manning these machines...." While the men accepted these terms, continuing disputes over their implementation, victimisation, and the removal of blacklegs kept them out until the beginning of February 1913.[168] Even when they returned, the status quo ante by no means returned with them: in the months that followed, Livesey repeatedly complained to the EEF that ASE members were restricting output, were refusing to allow time-cost cards to be used, and were generally interfering in the management of

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167 Livesey to Smith, 19.11., 20.11., 21.11., 27.11, 29.11.1912; EEF Emergency Committee Report 92, 18.11.1912; precis of Livesey case, ibid.

168 'Verbatim Report of Conference at Town Hall, Blackburn, 2.12.1919'; Livesey to Smith, 2.12.1912, 29.1, 30.1.1913; MS. 'True Copy of a Letter Received from One of the Men on Strike Present at Mass Meeting of the Men Held on Monday Night Last', 2.12.1912; 'Report by Blackburn ASE DC to EEF', 20.12.1912, ibid; Central Conference, case 233, pp.50-51.

the enterprise; by this point, he was ready to close up shop.[169] While the ASE men had not won their full demands, the balance of the settlement was clearly in their favour, and even a massive commitment of resources on the part of the EEF had been unable to prevent this outcome.

Despite setbacks of this kind, however, the EEF was not yet prepared to abandon the strategy which had brought such handsome results during the previous decade, particularly in the context of a boom which tipped the balance of power in favour of rank and file militancy. Long experience under the disputes procedures had bred a habit of negotiation among employers which was not easily broken, and the EEF was therefore prepared to discuss with successive ASE Executives amendments to the Terms of Agreement, while refusing any binding concessions on questions of principle. At the same time, the Federation cautioned its members to follow procedures strictly and avoid unnecessary provocation of the union; for example, firms were urged to place handymen on machines from the outset rather than experiment with craftsmen and replace them with handymen.[170] Even when the new ASE Executive unilaterally revoked the Terms of Agreement and the Carlisle Agreement, the Federation's initial response was to reopen negotiations rather than threaten a general lockout.[171]

But while the EEF was attempting to preserve its traditional strategy through negotiations with the ASE on the one hand, it was preparing to strengthen its hand for a possible confrontation by drawing up plans for a

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169 Livesey to Smith, 19.7., 29.7., 31.7., 28.8., 15.9., 3.12.1913, 13.2.1914, EEF M(4)1-2.

170 On clause 7, see EEF General Letter 176, 13.11.1913; EEF Minutes 13.10.1913.

171 EEF General Letter 181, 14.4.1914.

mutual strike insurance scheme on the other.[172] A scheme of this kind had been adopted by members of the ITEA on the Northeast Coast during the early 90s, but had dropped out of sight with the success of the more centralised and extensive EEF.[173] The inability of George Barnes to force the Northeast Coast strikers back to work in 1908 provoked the first efforts on the part of employers in the district to revive the concept of a strike insurance or 'indemnity' fund on a national scale, but it was not until the revival of craft militancy and the replacement of the ASE Executive in 1912 had begun to threaten the foundations of the 1898 settlement that the Federation became prepared to put it into practice. Many employers were wary of the expense involved in such proposals and feared lest they be forced to finance strikes arising, as John Lang, the Glasgow machine tool maker put it, "from employers' want of tact". Ultimately, however, the growing inability of existing tactics to contain the resurgence of craft militancy in the districts combined with the ASE Executive's determination to revoke the Terms of Agreement to override such reservations. The scheme finally approved by 92% of Federation members in 1913 called for the formation of a fund of £250,000, based on contributions of ½% of each firm's average wage bill for the previous three years, with an

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172 Even before the ASE Executive Council had become converted to a militant defence of craft regulation, the EEF was prepared to urge the Industrial Council to introduce measures for the legal enforceability of collective agreements, which would allow civil measures to be taken in cases of local breaches of agreements. A. Smith to Industrial Council, Enquiry into Collective Agreements, Minutes of Evidence, especially qs, 11,660 ff.; and the submission of A. Siemens, (President of the EEF) in ibid., Report, (Cd. 6952), P.P. 1913, XXVIII, pp.20-22. Smith nonetheless testified that the unions generally followed their agreements, though 'the men are becoming restive to the existence of the agreements...', and explained that the EEF viewed local breaches "...more as the safety valve of human nature than anything else", Ibid., Minutes of Evidence, qs. 11,622, 11,697-98.

173 B.C. Browne to Smith, 15.5.1912, including printed rules of 'Employers' Subsidy Association', 1895; see above, p.188.

additional levy of ¼% permitted by consent of the members if expenses exceeded £50,000 in any single year; to qualify for benefits, at 5s per striking man and 2s per apprentice or woman per day, firms were obliged to have followed the Federation Executive's instructions both before and during the dispute; no subsidies would be granted in case of national lockouts, strikes arising out of general wage claims, or the first fortnight of any dispute.[174] In 1914, the first year of the indemnity scheme's operation, six firms received a total of £3,791, the largest payment of £3,076 going to the Northeast Coast firm of Doxford and Sons for a strike involving 226 men and lasting for 57 days. From its inception until the qualifications for subsidies were tightened up in 1922, the Federation paid out £93,156 to firms in dispute, of which £53,079 was spent in 1919 alone.[175]

Thus despite its initial cautious and moderate response to the changing industrial climate and the ASE Executive's renewed support for craft regulation, the EEF was not prepared to see all that had been won in 1898 slip away. Sentiment was mounting among the rank and file of engineering employers in these years for a renewed confrontation with the ASE, and the Managing Director

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[174] Extract from minutes of Executive Board meeting, 7.7.1908; 'Draft for a Federation Subsidy Scheme', 17.10.1908 (prepared by Marjoribanks of Armstrong-Whitworth and Browne of Leslie, Hawthorn, both of Newcastle); EEF General Letter, 10.5.1912; letter from J. Lang to Smith, 14.5.1912; letter from Browne to Smith, 15.5.1912; minutes of Executive Board Meeting, 16.5.1912; Browne to Smith, 17.5.1912; amended drafts of scheme, 1912-13; General Letter 171, 30.4.1913, 'Suggested Institution of Subsidy Scheme'; General Letter 175, 1.10.1913, includes rules of approved scheme. EEF 1(4)2

[175] Figures in EEF I(4)12.

of Weir's, Cathcart, one of the more aggressive firms in the country on labour questions, was doubtless correct when he observed in 1917 that:[176]

> The position just before the outbreak of war was that, by consistent disregard of the Terms of Agreement, many of these provisions, though officially effective, had become inoperative, and these inroads on the powers of management in the shops had become so serious that, had war not intervened, the autumn of 1914 would probably have seen an industrial disturbance of the first magnitude.

The intensification of militancy on both sides during the war as a result of the Munitions Act, dilution, and inflation, coupled with the demands for workers' control raised by vocal sections of the shop stewards' movement would, of course, heighten engineering employers' determination for another definitive showdown with the unions on the question of managerial prerogatives, as the 1922 lockout would demonstrate.

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176 J.R. Richmond, Some Aspects of Labour and Its Claims in the Engineering Industry, Presidential Address to the Glasgow University Engineering Society, 1916-17 (Glasgow, 1917).

A Transformation of the Division of Labour 1898-1914?

In 1898 skilled engineers and their employers alike believed that if the industry's pattern of development continued indefinitely, the skilled craftsman would be replaced by the unskilled machine minder. While this belief had not been forgotton by 1914, neither had it become a general social reality. Where mass demand for a specialised product justified the construction of a jig or fixture to make the work completely automatic and foolproof, it might indeed be technically possible for unskilled labourers, boys, or in some cases women, to operate the machines, as a speaker before the Institution of Mechanical Engineers declared in 1914:[177]

> ...Once a jig or fixture has been properly designed and set up, it is possible in at least 60 percent of the cases to employ very much cheaper and occasionally unskilled labour to perform the same work with as much accuracy as any highly paid mechanic.

Generally speaking, however, it was not economical to specialise operations so narrowly. As the Ministry of Munitions discovered when it introduced women into munitions work during the war, optimal rates of production might only be achievable through several complete reorganisations of both machinery and workshop layout, an expensive procedure often impractical under the market constraints of commercial production.[178]

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177 Proceedings of the Institution of Mechanical Engineers 1914, quoted in Jefferys, Engineers, p.125. On jigs and fixtures, see A.L. Levine, Industrial Change and Its Effects upon Labour, 1900-14, (Ph.D. Thesis, London, 1954), pp.299-300, quoted in Weekes, ASE, p.160:

> Without resort to a jig or fixture the placing into correct position of a piece to be machine - for example a casting or a forging - necessitates extremely careful setting by means of a chuck, clamps, and so forth. Now where it is desired to produce in quantity, if a jig or fixture is used this setting up operation, and 'locating' may be considerably simplified, and the time necessary for this setting and locating greatly reduced. Moreover, not only is the locating of the piece done with dispatch but it is done with accuracy.

178 See the quotation from the History of the Ministry of Munitions, below, p.457.

Thus it was only where opportunities for mass production were most developed that the new technology could be pressed to its limits. But even in such cases, the result was neither the elimination of the skilled engineer nor simply the multiplication of semi-skilled machine minders, but rather a new polarisation of the labour force between a larger group whose skills were being downgraded and a smaller one whose skills were being enhanced. Where standardised and repetitive processes were introduced, craftsmen were still required to design jigs and fixtures, to make and set tools for the less skilled, and to repair and maintain the new machinery. While fewer craftsmen were required and the older and less competent workers most likely to fall by the wayside, these new tasks generally required greater skill than that of the ordinary fitter or turner, since the principles of the new techniques had to be assimilated to those of the old. Both employers and union leaders testified to the heightened abilities of the remaining full-skilled craftsmen: thus Sir Benjamin Browne informed the Poor Law Commission in 1908 that "a skilled mechanic now is a far higher class of man than he was 20 years ago", and George Barnes echoed this judgment: "I should say the skilled men require even more skill now than they did, because of the finer work and more intricate machinery."[179] Where it proved impractical or uneconomical to introduce mass production methods, on the other hand, skilled workers with a general training would still be required on direct production, even where new machine tools had been installed, and improvements to the older lathes had actually increased turners' versatility.[180] It was therefore only where craftsmen found themselves

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[179] RC on the Poor Laws, qs. 82,943 and 86,244.

[180] Jefferys, Engineers, pp.122-25.

working automatic or semi-automatic machines in the context of repetition production that a clear devaluation of their skills could be said to be underway; here lay the danger in 'following the work to the machine'.

Conversely, the non-apprenticed handyman might progress up a job ladder from the simpler to the more complex machine tools - as had been true since the 1870s - thereby accumulating a body of particular or plant-specific skills which if less versatile than those of the craftsman might nevertheless give him far greater bargaining power than that of a general labourer. At the apex was work on complex machines like the radial drill or the universal miller; by 1914 these had become recognised skills in some districts and their bearers received the district rate or slightly below.[181] From this point work became decreasingly skilled as machines became more automatic, until one reached the juvenile or female operative minding a 'fool-proof' machine. But as Richard Hyman correctly reminds us, "the gap between such semi-skilled workers as the automatic stamper and the universal driller was far greater in terms of skill than that between the driller and the fully-skilled turner."[182] It was of course the tendency for the handymen on the way up and craftsmen on the way down to meet as competitors in the same section of the labour market which lay behind the latters' militancy on the question of machine manning.

There were thus two central aspects to the problem of transformation of the division of labour in engineering in this period: the extent to which new machines and new processes had been introduced, and the extent to which

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[181] Cole, Workshop Organisation, p.34.

[182] Hyman, Workers' Union, p.41.

skilled craftsmen had been able to control the conditions of their introduction. We must bear these questions in mind when we try to assess the extent of employers' success in transforming the division of labour in engineering between the great lockout and the great war.

Any precise assessment of the progress of the division of labour in the industry between 1898 and 1914 must necessarily remain problematic: there is no single index which provides a suitable guide; even the movement of productivity measured in terms of output per man hour reflects a range of factors (levels of investment, capacity utilisation) in addition to the utilisation of labour itself. Hence we shall instead consider a number of different indicators to form a general impression of the position of skilled workers in the division of labour in 1914.

Perhaps the most crucial index is the proportion of men classified as skilled in the industry as a whole. According to the EEF, the labour force in Federated firms in 1914 was 60% skilled, 20% semi-skilled, and 20% unskilled.[183] Barnes estimated in 1908 that 30-40% of engineering workers earned less than the standard rate; 10% of the total were labourers.[184] The weight of the semi-skilled was far higher, of course, in the newer, lighter sectors: according to the 1911 occupational census, 45% of the labour force in general

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[183] Yates, British Engineering, p.31.

[184] RC on the Poor Laws, q.82,845

engineering was semi-skilled in Coventry, compared to 16% in Sheffield, 19% in Glasgow, and 18% nationally.[185] The EEF figures provide only an approximate guide, but their bias if anything overstates the extent of change in the industry as a whole, since Federated firms tended to be larger and more specialised than those which remained outside. Taken as a social rather than a technical index, then, these figures suggest that the ASE had been generally successful in defending the craft status of its members by winning control of new machine tools.

A similar picture emerges if we examine the extent to which engineering jobs had become 'women's work', in social terms the opposite pole to 'skilled men's work', in pre-war Britain. To be sure, the number of women in the engineering trades grew more rapidly than did total employment in the industry between 1891 and 1914 - increasing from 58,000 in 1891 to 128,000 in 1911 and 170,000 in June 1914 while the total labour force in engineering and ship-building grew from roughly 11 million in 1911 to 18 million in 1914.[186] But while the number of women in general engineering shops had reached 17,000 in 1914, women before the First World War remained largely confined to simple repetition work in the newer sectors of the industry concentrated in London and the West Midlands - especially cycles and electrical goods - and so presented little immediate threat to skilled men's craft status.[187]

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185 Hinton, Shop Stewards, p.218.

186 B. Drake, Women in the Engineering Trades (1917), p.8; Jefferys, Engineers, p.118.

187 Drake, Women, pp.8-13.

On the other hand, if the composition of the labour force suggested that the ASE was protecting skilled men's position in the division of labour in the short-run, the decline of apprenticeship pointed to a bleaker future in the long-run. We have seen that after 1898 engineering employers intensified their traditional strategies of eroding the ratio of apprentices to journeymen and of using the former as cheap labour, with an attendent dilution of technical training.

In contrast to their success on machine manning, skilled workers were rarely able to win significant concessions from their employers on the question of training, and the more ambitious schemes for an apprenticeship system for machinists mooted by the engineering unions towards the end of the period proved non-starters.[188]

Similarly, despite, the success of engineering craftsmen in capturing the new machine tools, the employers continued to introduce them at a pace only slightly below that achieved in the 1890s. According to an index constructed by Professor Saul, the total output of nine of the best-practice British machine tool firms (of which roughly one-third was exported) increased by two and a half times between 1900 and 1914, where it had tripled in the previous decade. Similarly, although imports of American machine tools to Britain declined after 1902, they rose sharply again to reach a higher absolute level in the 1911-14 boom.[189] Thus an increasing proportion of ASE

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[188] Board of Trade, Apprenticeship, pp.56-72. On employers' erosion of apprenticeship after 1898, see above, pp.360-62.

[189] Saul, 'Machine-Tool Industry', p.30; Floud, 'Engineering Competition', p.61.

members were operating machines which often demanded less than their full range of skills.

The spread of systems of payment by results provides another important measure of changes in the division of labour. (See Table 4) With the expansion of repetition production and the abandonment of official union opposition after 1898, piecework, as we have seen, expanded rapidly.[190] Whereas in 1892, the ASE had reported some 12.9% of its members on piecework, with higher figures in the West Midlands and other areas, the 1906 wages census found 27.5% of all engineering workers to be paid by results, while the figures for fitters and turners alone had risen to 33%; by 1919 these proportions were surely higher still. Again the figures ran higher in certain sectors: 67.6% in railway carriage building and 52.8% in cycles.[191]

Piecework in engineering was generally associated with the expansion of standardisation and the weakening of craft regulation, so that the increasing proportion of skilled engineers working under it offers some guide to the changing division of labour. But it was the premium bonus which emerged in this period as the cutting edge of the managerial assault on skilled workers' position in the division of labour and which therefore became the target of the bitterest attacks on the shop floor. The 1906 wages census showed 4.6% of all engineering workers on some form of premium bonus, while an ASE survey

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190 See above, p.360.

191 See Table 5 and 1906 Wages Census, Engineering, Shipbuilding, and Metal Trades; Jefferys, Engineers, p.129, cites an EEF Survey as evidence that in 1914 46% of fitters and 37% of turners in Federated shops were paid by results; he gives a reference to Rowe, Wages in Theory and Practice, app.II, which does not, however, discuss this survey.

three years later reported 9.2% of members working under this system. The TUC Joint Committee concluded that the premium bonus was generally confined to repetition work in the armament, motor, locomotive, and electrical sectors, though it was spreading to marine and general engineering.[192] Although there are no comparable figures for 1914, it seems clear that the premium bonus and other more radical innovations in managerial practice affected only a limited proportion of ASE members concentrated in the more advanced sectors, but these became the focus of resistance among the rank and file precisely because they were seen even by those unaffected as the most extreme of the threats to skilled workers' autonomy and control at the point of production.

Were there accurate statistics available on the movement of real earnings these might provide another indication of skilled fitters' and turners' ability to contain the social consequences of technical change. Given the changes in the skills required from fitters and turners, if wage rates reflected skill levels directly we would expect a number of related developments: 1) an internal differentiation of rates within these categories of skilled workers; 2) an erosion of the differentials between skilled and unskilled workers; and 3) the emergence of new differentials between fitters and turners on the one hand and those skilled trades whose skills were under less pressure, such as the smiths or patternmakers. Judging by the movement of the standard rates, however, none of these developments occurred, at least at a national level; as J.W.F.Rowe has sought to demonstrate, between 1886 and 1914, the ASE was able to maintain its standard rates for fitters and turners at levels parallel

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[192] Ibid.; TUC Joint Committee, Premium Bonus, pp. 11, 73-4.

to those of other engineering crafts, nor were differentials narrowed in relation to the semi-skilled in most cases.[193] But union officials alleged that many engineering workers were in practice unable to earn the district rate where piecework systems were operated unfavourably, and it is therefore doubtful whether we can take the movement of the standard rate as an accurate guide to the movement of real earnings, even when supplemented by the 1906 Wages Census.[194] In some areas, moreover, the semi-skilled were indeed able to narrow the differential between their rate and that of the skilled: in the new industries of the West Midlands, the Workers' Union organising drive was able to raise labourers' wages from 59% to 71% of the district rate, while many of the semi-skilled were already earning the full rate or just below.[195]

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193 Rowe, Wages in Practice and Theory, pp.104-11.

194 The Board of Trade Enquiry of 1906 shows piece workers in engineering as earning 18.5% more than time workers. A number of considerations shed doubt on this figure as an accurate assessment of differentials between the two groups. First, the Board of Trade survey reflects only earnings in a single week at a high point of the trade cycle when wage drift might have been expected to be most evident, and pieceworkers would have been unlikely to sustain this rate of earnings over the whole year or throughout the trade cycle. Second, these figures relate only to those workers employed on a full working week, while piecework would often have been accompanied by periods of short time due to lower demand or delays in the supply of raw materials. Third, the EEF's own figures for 1914, also a prosperous year, show no gap between time and piece earnings in Federated workshops, a conclusion which tallies with the frequent union complaints about rate cutting and the tendency for piece earnings occasionally to fall below the district rate. For the EEF figures, see R.A. Hart and D.I. Mackay, 'Engineering Earnings in Britain, 1914-68', Journal of the Royal Statistical Society, Ser. A, 138, Pt. I; for similar observations about pieceworkers in shipbuilding, and the 1906 Wages Census, see Reid, Shipbuilding, pp.50-61.

195 Hinton, Shop Stewards, p.219.

And though the differentials between skilled engineers and other groups of skilled workers did not change dramatically on the national level, neither did their real wages continue to rise as they had between 1850 and 1890.[196]

Finally, such evidence on the movement of productivity as exists suggests that the persistance of craft militancy after 1898 contributed to restrict the rate of growth of output per man hour in engineering before 1914. An index of the throughput of metal processed per worker in engineering between 1880 and 1914 compiled by Phelps Brown and Browne shows a rapid rise in the 1890s followed by a levelling-off thereafter; similarly, between 1900 and 1914, the growth of productivity measured in these terms tended to lag behind that of output in the upswing of the trade cycle, an effect which is particularly marked in the boom of 1911-14. These results support the view that the intensification of craft resistance to the reorganisation of the division of labour after 1900 and particularly after 1911 played a significant role in the deceleration of productivity growth, a view which Phelps Brown and Browne share. This evidence must be handled carefully, however,both because of the intrinsic difficulties of constructing an index of productivity in so heterogeneous an industry as engineering, and because of the large contribution of capital investment to productivity growth. The movement of the terms of trade in favour of primary producers after 1900, which brought in its train a revival in demand for Britain's traditional exports, undoubtedly encouraged manufacturers in the older sectors to pursue a strategy of extensive expansion

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196 Yates, British Engineering, pp.99-106.

in their existing specialities rather than run the risks involved in product diversification or in expensive retooling of plant; certainly, the lag of productivity growth behind the growth of output is consistent with the view that British engineering firms tended to avoid large capital investments, prefering to meet expanded demand with a fuller use of existing capacity or by sub-contracting.[197]

Two general points can be made about the extent of the transformation of the division of labour in the industry as a whole. First, despite the increasing polarisation between large and small firms in the years after 1890, the bulk of British engineering concerns remained small and unspecialised in relation to their American and German competitors. As the Board of Trade Committee on the Engineering Trades noted in 1918: the industry was distinguished by "the smallness of the individual firms and of the capital they employ."[198] Second, however much progress individual British manufacturers had made by 1914, the overall position of British engineering in world markets was clearly declining. Where British engineering products had generally reigned supreme in 1880 and even 1890, American and German makers now presented a serious challenge: in 1913 the UK exported £34.8 million of mechanical engineering products (motor cars excluded), to Germany's £37.2 million and America's £26.9 million. (See Table 12)

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197 Phelps Brown and Browne, Century of Pay, pp.174-95, especially pp.177, 180-81.

198 Board of Trade Departmental Committee, Report on the Position of the Engineering Trades After the War, Cd. 9073, P.P. 1918, XII; Saul, 'Engineering'.

But in assessing the extent of transformation in this period, it is again crucial to distinguish between the newer, lighter sectors of the industry and the older heavier ones. The newer sectors were the growth centres of the industry, and in certain cases, British manufacturers were able to create plants whose advanced division of labour allowed them to compete with the emerging American and German industries. In bicycles, for example, where American competition had provided the initial stimulus to British entrepreneurs, by 1913 Britain exported 150,000 to Germany's 89,000, while the rest of the world exported almost none. In sewing machines, too, British products were competitive, though not predominant as in cycles: in 1913 the UK exported £2.4 million worth of sewing machines, to 2.8 million for Germany and £2.4 for the US.[199] In other new products, however, British manufacturers did less well: electrical engineering, agricultural machinery, gas and oil engines and motor cars are good examples.[200] In explaining economic retardation, it is always difficult to separate external factors such as the structure and extent of demand from those internal to the firm, and to assess the role of labour in relation to the latter. In motor cars, for example, where the British output of 34,000 cars per year on the eve of the war was dwarfed by America's 485,000, the difficulties of reorganising production seem to have been critical. No British manufacturer was able to introduce an assembly line before 1914; in fact only two makers were moving towards truly interchangeable production methods. The consequences for productivity were staggering: while in 1903-4 Ford employed 300 men to make 1,700 cars in 1914 no British maker exceeded one car per man per year.[201] While the predominance

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199 Saul, 'Engineering', pp.214-15, 227; Harrison, 'Cycle Industry'; Balfour Committee, Survey of the Metal Industries, p.193.

200 Saul, 'Motor Industry', 'Mechanical Engineering', 'Engineering'; Byatt, 'Electrical Products'; McLean, 'Engineering Competition'.

201 Saul, 'Motor Industry'.

of skilled workers in the British firms undoubtedly acted as a constraint on the employers, - ASE members on motor work struck successfully over machine manning in Coventry in 1913 - the artisinal structure of production owed more to the restriction of British firms to a luxury market, and though other European producers employed more advanced methods, none had introduced an assembly line before the war.[202] Similarly in electrical engineering it was above all the limits of the domestic market which inhibited the development of British firms.[203]

In the older heavier sectors where both the existing division of labour and trade union organisation were more deeply entrenched, the balance between market and social obstacles to innovations was more mixed. In some sectors, such as textile engineering, continued British dominance in world markets discouraged wholesale reorganisation of production in favour of steady returns from existing plant, while in marine engineering, the variability of demand made capital-intensive investment strategies impractical even in the face of competition. In both cases, however, it is also clear that the persistence of shop floor resistance by skilled workers placed a major restraint on such technological and managerial innovation as employers undertook, ensuring that new machine tools would be worked both more expensively and less productively than would otherwise have been the case. In the crucial machine tool sector British firms specialising in automatic machinery grew rapidly from the 1890s, but American and German makers dominated most European and Third World markets by 1914. As the Board of Trade Committee on the Engineering Trades reported in 1918:[204]

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202 P. Fridenson, 'The Coming of the Assembly Line to Europe', in Layton et al., (eds.), The Dynamics of Science and Technology (Dordrecht, 1978).

203 Byatt, 'Electrical Products', Electrical Industry.

204 Engineering Trades After the War, p.12.

> There are makers who specialise to some extent in this country, and with notable success, but speaking generally specialisation is not carried nearly so far as in the USA, where makers manufacture milling and grinding machines and automatic lathes in great numbers and have secured a very large proportion of the trade.

While the late and limited development of demand for automatic machine tools from other sectors of the industry, together with the proliferation of small firms were central to the international weakness of British makers, here, too the resistance of skilled workers to changes in the division of labour undoubtedly inhibited conversion to the production of lighter machine tools which could be mass produced.[205]

It was in the arms industry, poised between light and heavy production and between the public and private sectors, that the most extensive transformation of the division of labour in existing shops occurred, hence also the most militant resistance on the part of engineering craftsmen. The years between 1898 and 1914 were rife with expansion and amalgamation in this sector: companies like Armstrong-Whitworth and Vickers grew rapidly, as did the Royal Arsenal at Woolwich, all stimulated by military competition among the European powers. The transformation of the division of labour had perhaps gone furthest in armaments than in any other long established sector of the industry. But, even here, the onset of war and the resulting munitions shortage would rapidly demonstrate just how limited the effective displacement of the skilled craftsman had been.

The decade and a half between the 1898 lockout and the coming of war was a period of continuous technical and organisational change in British

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[205] Saul, 'Machine-Tool Industry'; Floud, Machine Tool Industry, chs. 1, 3, 4.

engineering. Employers introduced new American-model machine tools in significant numbers, and this change in technique was not without its ramifications for the division of labour - though these of course were greater in the newer than in the older sectors - as the increasing proportions of semi-skilled workers and payment by results in the industry suggest. But skilled workers' resistance on the shop floor had placed severe limits on employers' ability to reorganise the division of labour, so that we can only speak of a thoroughgoing transformation in a few large and specialised plants in certain sectors.

The efforts of the EEF and the ASE Executive to enforce the Terms of Settlement to facilitate such transformation had merely resulted in the disintegration of central authority rather than in the diminution of rank and file resistance, a process speeded along by the democratic structure of the union and the favourable economic climate for the older sectors after 1900. In 1914, with a new Executive Council committed to the defence of craft regulation, the ASE's self-image as a craft society seemed as entrenched, if not as secure, as it had been in 1890. But craft regulation itself was in decay in many important areas - apprenticeship and piecework for example - while the policy of 'following the machine' implied the dilution of the technical skills needed for engineering production. Many ASE members were employed at tasks which no longer required the full craft training of a skilled fitter or turner, but only the particular and plant-specific skills which they often shared with handymen who had served no apprenticeship. In an increasing proportion of cases, therefore, the ASE's claim to be a society of craftsmen possessing skills indispensible to production rested on a fiction enforced by its members through their local organisational capacity. This fiction was

becoming more evident as the position of British engineering in the world economy deteriorated. The outbreak of war, with its demands for enormous quantities of munitions and other engineering products would highlight the weakness of the ASE members' exclusive claims, and the less favourable economic climate of the 1920s would see employers launch another, more decisive effort to root out those surviving elements of craft regulation which obstructed their freedom of action in the workplace.

# PART III

## OUTCOMES AND EXPLANATIONS

# Chapter VII

## Epilogue and Outcomes:

## Engineers and Compositors on Divergent Paths

By the outbreak of the First World War, marked divergences had already become apparent in the respective abilities of skilled engineers and compositors to defend their positions within the division of labour in the face of pressures toward technical and organisational change. Compositors had conclusively captured composing machinery and had used the enhanced bargaining power thus acquired to improve significantly the effectiveness of craft regulation in their trade, reversing the tendency for their position to deteriorate evident before mechanisation. Skilled engineers, by contrast, saw the hold of their framework of regulation ebbing away, despite the remarkable success of their guerilla campaign to retain control over new machine tools, especially during the final pre-war boom. By the mid-1920s, the differences in the trajectories of skilled workers in the two industries had become vastly more pronounced.

Without denying the importance of the specific experiences of each trade during the First World War and in the changed economic and political climate of the post-war period, it is our contention that these divergences largely reflect the working out of the basic tendencies of development whose roots in struggles over the reorganisation of the division of labour we have anatomised in the pre-war period. To substantiate this line of argument, we will begin by comparing the positions of skilled engineers and compositors in 1914; a brief account will follow of the experiences of the two trades during the war and post-war recession, based largely on secondary sources; finally, we will review our comparison of the two trades from the vantage point of the inter-war years.

## Engineers and Compositors in 1914

As we have already suggested, skilled engineers and compositors had by the eve of the First World War embarked on markedly different paths as a result of variations in their ability to contain the effects of technical and organisational change on their position in the division of labour and on the framework of craft regulation which served to sustain it. Indications of these differences can be found in the respective abilities of the two trades to control the working of new machinery; to control the labour market; to regulate working conditions and methods of wage payment; and finally, to impose their will on employers in full-scale confrontations.

Throughout our analysis we have placed a central emphasis on the struggles of skilled workers to win control over new machinery, and in the preceding chapter we drew attention to the relative success of skilled engineers in winning concessions from their employers over machine manning despite the provisions of the 1897 Terms of Settlement, a trend which became particularly pronounced with the changes in the ASE Executive and the tightening of the labour market after 1911. Nevertheless, it was still the case that semi-skilled labour was expanding more rapidly than total engineering employment during the period, though the inadequacies of the census data make it impossible to say by how much, and many of these handymen were clearly operating machines similar to those worked by a growing proportion of ASE members. The most rapidly growing sectors of the industry, moreover, were those which disproportionately employed the less skilled, such as cycles, motor cars, and electrical engineering; in those regions where the new trades

predominated, in London and especially in the West Midlands, the Workers' Union, which represented the semi-skilled, was beginning to challenge the ASE's hegemony during the labour unrest of 1911-14.

In printing, by contrast, the control of composing machines established by the typographical unions was very nearly total; in fact, the machines were on the whole controlled more effectively than was hand work. The printing unions, moreover, were able to secure from employers a set of protective regulations which maximised the employment of the surviving hand compositors and insulated them from the worst effects of competition from the machines: all machine operators had to have been trained as hand compositors, and in London machine operators could not be returned to case work without two weeks notice; apprentices were forbidden to work the machines until the last few years of their training; and case hands were guaranteed equal access to copy, enforced in London by the principle of simultaneous 'lift' or starting times for both groups. The advent of the machines also enabled male compositors in Edinburgh and elsewhere to eliminate those pockets of female labour which had weakened their organisation, despite the early employment of women as monotype operators, a task for which many employers believed them to be ideally suited.

While control over the machines and the elimination of pockets of female labour were important components of the tightening control of the typographical unions over the labour market, equally crucial in the long-run was the revival of apprenticeship regulation. As we have seen in earlier chapters, the diminishing effectiveness of apprenticeship restriction was a central aspect of

the deterioration of skilled compositors' position between the 1850s and the 1880s, and its revival from the mid-80s was both a contributory cause and a consequence of their successful struggle for control over composing machines. The composing machine agreements signed in the 1890s proved the cutting edge of a growing formal acceptance on the part of employers of the unions' apprenticeship ratios, even if the latter were forced to grant a limited extension of the scale in the Provinces and in Scotland towards the end of the pre-war period. Other signs of growing control over the labour market included the reduction of systematic overtime and casuality, the latter practice having been an especially important force depressing the compositor's earnings and intensifying his labour before mechanisation; here the productivity gains attendant on mechanisation perhaps played the determining role, though the unions were active in imposing tighter rules to discourage these practices in the decade before the war.

In engineering, on the other hand, apprenticeship was clearly in decay, as many employers recognised no restrictions and apprentices approached - or even exceeded - journeymen in number in some firms; in most cases apprentices were seen as a source of cheap labour and were often employed on repetitive processes to the detriment of their technical training. While the engineering unions sought in conferences with the employers immediately before the war to press their case for a revived form of apprenticeship which would extend to machinists as well as the older trades, the latter refused any concessions despite the upsurge of shop floor militancy. Similarly, systematic overtime seems to have been widespread in engineering through most of the pre-war period

despite a limit of 40 hours per man per month provided in the Terms of Settlement (reduced to 32 in 1907), though some more effective regulation revived towards the end of the post-war boom.

Another significant sign of the erosion of craft regulation in the work place was the growing extension of piecework, together with new systems of supervision and incentive payment: by the outbreak of war more than one-third of all fitters and turners were paid by the piece, while nearly 10% of ASE members were working under the hated premium bonus system. Here again the revival of craft militancy after 1911 helped to curb the extension of the premium bonus and the encroachment by feed and speed men on skilled engineers' control over their work, while District Committees and shop stewards gradually acquired a greater voice in the setting of piece prices, but the premium bonus once installed was rarely dislodged, even during the height of rank and file bargaining power on the eve of the war. In printing, by contrast, skilled workers enjoyed considerable success in prohibiting the use of indicators which employers had hoped to use to force a faster pace on stab hands, and complaints about piece-stab and slating largely disappeared with the advent of mechanisation under effective union control. On London daily newspapers, moreover, the particularly well-organised compositors succeeded in defending their ancient piece scale which gave them a disproportionate share of the returns from mechanisation despite the proprietors' efforts to impose a stab wage, which would have tightened managerial control over labour costs and indeed over working practices.

These marked divergences in the effectiveness of craft regulation stemmed in large measure from variations in the balance of forces between

workers and employers in the two industries (though also and relatedly from differences in their market position and profitability). Employers in engineering emerged victorious from the 1897 lockout, as well as from subsequent local confrontations in 1903 and 1908; they retained the upper hand in relations with the unions until the resurgence of craft militancy during the pre-war boom, despite their inability to capitalise fully on their advantage to transform the division of labour. In printing, on the other hand, it was the unions who played the more aggressive role, especially in London: The 1911 50 hours strike,which was initiated by the unions rather than the employers and offers the closest parallel to 1897-8,ended in a partial if incomplete victory for the men, which they were able to consolidate in the decade that followed. In the Provinces and Scotland, to be sure, employers in several instances took the initiative in imposing regional frameworks of collective bargaining on the unions which they hoped would contain the forward surges of craft regulation. These moves were, however, largely counter-offensives which resulted in formal acceptance by the employers of the most important extensions of craft regulation, even if their terms were less favourable than those won by the better-organised LSC.

## Engineering from War Economy to Depression

Wartime developments in engineering have attracted a great deal of attention from historians as they did from contemporary observers. With the urgent demand for shells on the Western Front, the engineering industry, especially its munitions sector, assumed a central role in the war economy, and novel bureaucratic instruments were created to administer it. Employers and trade union leaders were drawn into protracted negotiations over the formulation and implementation of state policies for war production, as sharp legal controls were imposed on labour mobility and strike action. The inability of the arms firms to deliver sufficient quantities of munitions using existing production methods led the state to seek, and ultimately to obtain (albeit to a limited extent), the suspension of trade union work rules and the dilution of skilled labour - i.e., the replacement of skilled craftsmen by less skilled male and female labour on certain operations - subject to guarantees of the restoration of pre-war practices, and large numbers of women entered engineering workshops for the first time. The extension of state control over the labour force, the progress of dilution, and the threat to living standards posed by rampant wartime inflation provoked successive waves of industrial discontent. As a result of the limited cooperation of trade union leaders with the war effort and the legal bans on strike activity, rank and file protest was organised in some areas by unofficial shop stewards' groups, though in many instances local union officials took a leading role.[1]

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[1] The literature on the engineering industry during the First World War is vast and growing rapidly. Of the contemporary accounts, the official History of the Ministry of Munitions (8 vols., 1920-24), the two volumes by G.D.H. Cole in the series produced by the Carnegie Endowment for International Peace, (Workshop Organisation and Trade Unionism and Munitions), and Drake, Women in the Engineering Trades are of particular interest. Among the secondary literature, Hinton, Shop Stewards, is the most influential study but needs to be read in conjunction with Reid, Shipbuilding, pt.III, and I.S. McLean, The Labour Movement and Clydeside Politics, 1914-22, (Oxford D.Phil., 1971). On the Ministry of Munitions, see also C.J. Wrigley, Lloyd George and the British Labour Movement, (Brighton, 1976), and R.J.Q. Adams, Arms and the Wizard: Lloyd George and the Ministry of Munitions (1978).

The entry of the engineering industry onto the national political stage during the war raises a wide range of important questions, of which perhaps the most interesting concern the character of state intervention in the economy and in industrial relations, together with its relation to the pressures and interests of employers and trade unions. Such issues, however, lie well beyond the scope of this thesis.[2] Rather than attempt a full-scale account of wartime conflicts in engineering, we will instead confine ourselves to a brief assessment of the significance of wartime developments for the struggles over the reorganisation of the division of labour whose course we have traced to 1914.

The dramatic character of the conflicts over dilution in the munitions factories, together with the role ascribed to them in the genesis of unofficial shop steward organisation, has placed them at the centre of historical analyses of the wartime unrest, particularly in the influential work of James Hinton.[3] This emphasis on dilution has, as Alastair Reid has shown through a careful analysis of events in shipbuilding, led to an undue neglect of other sectors equally important to the war economy and to wartime industrial conflict, as well as to the projection onto them of a model drawn from munitions. At the same time, other sources of workers' discontent with state intervention in industrial relations have received insufficient attention, though they figure in Hinton's and others' accounts, particularly grievances over restrictions on labour mobility, the working of munitions tribunals, the

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[2] For a stimulating discussion of these issues, see Reid, Shipbuilding, ch.10, 'Skilled Workers and the State during the First World War'.

[3] Hinton, Shop Stewards, although most of the works cited in note 1 above share a similar emphasis.

extension of payments by results, the suspension of demarcation rules, and the lag of wages behind prices. Such objections can also be applied to engineering itself, where generalisations have arguably been drawn from the most advanced sectors, especially the shell factories, to the experience of the industry as a whole.[4]

But the aspect of this focus on wartime dilution which most centrally concerns us here is the tendency to overstate its significance for the long-term transformation of the division of labour in the industry. Implicit in Hinton's argument that the programme of the Clyde Workers' Committee and other shop stewards' organisations offered a superior response to that of the ASE Executive to the threat posed by dilution is the assumption that wartime measures opened an irreversible breach in the framework of craft regulation:[5]

> ...The ASE Executive never faced up to the problems posed for the traditional craft strategy by wartime dilution.... The guarantees ...of the restoration of pre-war practices after the war were of highly questionable value.... No amount of legislative activity of this kind could have protected the engineering craftsmen against the fundamental threat to their economic security implicit in the adaptation of the industry to the needs of war production.
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> It was the shop stewards' movement that produced the most realistic response to dilution. Although based in the anxiety of craft workers faced with immiseration, the movement rejected not only the patriotic collaboration of the Executive, but also its craft exclusiveness. Dilution was accepted as inevitable and progressive: 'a step in the line of industrial evolution'. From the outset the pursuit of restoration was seen to be futile, and in contrast with the Executive, whose whole position implied a ruthless purge of dilutees from the industry after the war, the shop stewards attempted to meet dilution in a way which would reconcile the interests of craftsmen and dilutee.

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[4] Reid, Shipbuilding, pt. III; for an account of the diffusion of simplified versions of Hinton's conclusions into the secondary literature, see ibid., pp.242-43.

[5] Hinton, Shop Stewards, pp. 65, 35, 73-74.

This vision of dilution as a major step in the elimination of the skilled craftsman from engineering production figured prominently in the hopes of employers, and in the fears of trade unionists (not least the ASE Executive, whose whole strategy was aimed at delaying dilution and minimising its effects), though as the war wore on its significance diminished.[6] In the event, however, these cataclysmic predictions proved unfounded: the Restoration of Pre-War Practices Act was duly passed into law in 1919 and the vast majority of the dilutees in due course flooded out of the engineering workshops. Of the 819,000 women working in the industry in 1918, only 221,000 remained by 1921, as compared to 172,000 in July 1914.[7]

To understand why the long-term impact of the introduction of women during the war on the composition of the labour force was so limited, it is necessary to bear in mind the fundamental differences between wartime dilution and the initiatives toward the reorganisation of the division of labour underway before the war. Dilution, in contrast to pre-war changes in the division of labour, was undertaken by the state in order to meet its immediate wartime needs for munitions rather than by employers responding to the pressures and opportunities of the market. As we have seen, the limited demand for mass produced goods coupled with the expense involved in retooling existing plant inhibited the extent of the transformation of the division of labour in pre-war Britain. The freedom of dilution from market constraints permitted the temporary development in munitions works of a division of labour more advanced than anything which had existed before the war, even in the newer sectors of

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[6] For employers' hopes, see the quotations in Hinton, p.21 and History of the Ministry of Munitions, IV/2, p.48. For the skilled men's fears and those of the ASE leaders, see the quotations from the negotiations leading to the 1915 Treasury Agreement in Wrigley, Lloyd George, pp.165, 262; History of the Ministry of Munitions, IV/2, pp.47-48; and H.E.R. Highton, 'Report on the Engineering Industry, Clyde District', in Drake, Women, especially, pp.131-32.

[7] Yates, British Engineering, pp.146-47.

engineering. As the official History of the Ministry of Munitions remarked:[8]

> ...Finance was at no time a limiting factor in the production of munitions. The division of labour, therefore, was not checked by the expense of installing new machinery, making special arrangements for women.... New factories were laid out for the mass production of specific munitions and equipped with machines each designed for a specific purpose.... The War resulted not only in the re-equipment of many old workshops with machinery, much of which was designed for a single limited purpose.... Every mechanical device was introduced that could facilitate the handling of weights or render the operation of a machine tool by an unskilled operator foolproof. Even where such expenditure ultimately resulted in economic production, it could rarely have been undertaken subject to ordinary commercial risks.

At the same time, the fact that dilution was not undertaken with commercial considerations in mind meant that the reorganisation of the division of labour was not designed to meet the long-term needs of British engineering manufacturers, as would become all too apparent after the war.

The peculiar aims and conditions of wartime dilution ensured that its impact on the skill structure of engineering production was markedly different than that of pre-war managerial initiatives. Whereas pre-war changes in the division of labour had brought about a downgrading of the skills of many engineering craftsmen, leaving them open to competition from the lower-paid handymen, the vast expansion of engineering production coupled with the influx of large numbers of women unfamiliar with metal work created an unprecedented demand for skilled engineers to make and set tools, repair and install machinery, and to train and supervise the unskilled. Thus the war brought about a temporary upgrading of engineers' skills which, coupled with the shortage of skilled labour, enhanced their bargaining power and helped to ensure

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[8] History of the Ministry of Munitions, IV/2, pp.74-75, 79.

that dilution was implemented on relatively favourable terms.[9]

The specialised character of war production likewise meant that women munition workers were concentrated on work which had little direct connection with pre-war output. The bulk of the women were employed on shell and gun work - at first confined to light work and moving on to heavier tasks as the war went on - and much of it in special purpose-built National Shell Factories: 225,000 of the 819,000 women were employed in government establishments, most of which would be closed down after the war.[10] While a large proportion of direct substitutions of women for men occurred in general engineering, motor and cycle, and electrical work (39%, 20%, and 4% of the totals, respectively), direct returns published by the Board of Trade show that the absolute numbers involved were small relative to the total number of dilutees: 84,000 in general engineering, 42,000 in motor and cycle work, and 15,400 in electrical work.[11] And even in these sectors, the women were engaged in production closely geared to the specific needs of the war effort, constructing and assembling specialised machine tools and other components needed for the shell and gun factories. Where women were substituted directly for men, moreover, they rarely did the same job; as many observers commented, the basic pre-condition for the employment of women was the introduction of specialised automatic machines and the minute subdivision of tasks; supervision was also far heavier than was customary in pre-war practice, and women rarely set their own tools, in contrast to semi-skilled men.[12]

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[9] Ibid., p.80; Hinton, Shop Stewards, pp.63-64.

[10] Yates, British Engineering, p.147.

[11] Reid, Shipbuilding, Table 6, p.446: Hinton, Shop Stewards, p.63.

[12] Drake, Women, pp.8-9, 14-40; Highton, 'Clyde District' in ibid., pp.115-19.

The fact that dilution largely involved the reorganisation of work to permit the employment of women without previous experience in engineering, rather than the upgrading of semi-skilled men which had been the principal feature of pre-war changes in the division of labour, proved an important force for the smooth restoration of pre-war practices. Had dilution instead brought about a massive promotion of semi-skilled men onto skilled men's work, the lines of demarcation would have been extremely difficult to redraw at the end of the war. But the military's need for manpower, together with the ASE's success in protecting skilled men from conscription, led to the enlistment of most semi-skilled men into the armed forces, compelling the government to concentrate on the introduction of women on munitions production. The bulk of the women employed on war work were engaged in simple repetition operations on specialised machines, so that the skills they acquired could not easily be converted to other tasks. Thus the transformation of engineering production during the war, precisely because it was so much more radical than the pre-war reorganisation of the division of labour, proved to be too narrowly directed towards munitions work to serve engineering manufacturers' needs in producing for post-war commercial markets. As a further confirmation that wartime dilution did not represent a step continuous with the development of the division of labour after the war, the number of women employed in engineering increased relatively slowly during the 1920s and 30s: from 221,000 in 1921 they had reached only 276,000 in 1931, and were heavily concentrated in

electrical engineering, motors and cycles.[13]

To some extent the rapid purge of dilutees after the war was the result of the legal obligations incurred by the state and of the ability of skilled workers to force compliance from employers anxious to avoid disruptions in the conversion to peacetime production. But as G.D.H. Cole pointed out at the time:[14]

> More important...was the fact that those who foresaw a determined attempt by employers to keep dilution after the war had, to a large extent, misunderstood the nature of the war-time changes and greatly over-estimated their probable influence on post-war methods of production. In fact, most of the forms of dilution introduced during the war, while they afforded important lessons for further application to the technique of production, were not suited for direct and immediate application to the forms of normal production to which employers reverted when their contracts for munitions came to an end.

If the war, then, marked no major watershed in the distribution of engineering skills, it had, nonetheless, a number of less direct repercussions on the struggle between skilled workers and their employers. First, as Cole

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13 Yates, British Engineering, pp.157-59; Balfour Committee, Survey of the Metal Industries, p.320; Caterall, 'Electrical Engineering'. This is not to say that the war had no impact on the distribution of engineering skills. As Table 13 shows, EEF estimated that the proportion of skilled men in Federated workshops fell from 60% to 50% of the total between 1914 and 1921. These figures, however, pose special problems of interpretation. The proportion for 1914 is probably only a rough estimate, while that for 1921 conflates the effects of the war with those of the post-war boom and subsequent recession. Thus the proportion of semi-skilled for 1918 would undoubtedly have been higher if dilutees were included, but those for 1921 reflect the return of semi-skilled men from the army, the widespread unemployment among the skilled beginning in 1920, and the disproportionate growth of the new sectors with lower skill levels between 1918 and 1921. Extreme caution must therefore be exercised in treating these figures as an index of wartime changes in the industry.

14 Trade Unionism and Munitions, p.196.

pointed out, wartime experiences offered employers a potentially fruitful model for the future developments in the division of labour; this model was, however, taken up largely by the newer sectors, especially motor cars, where the American example was of at least equal importance.[15] The wartime model had a parallel effect on trade unionists, as the experience of the tentative and ultimately unsuccessful alliance with the unskilled glimpsed at certain moments during the war contributed first to the amalgamation of the ASE and other craft societies into the Amalgamated Engineering Union in 1920 and then to the opening of the latter to large numbers of the less skilled after 1926. Second, the war aggravated the difficulties of the older, heavier sectors of the industry which were already becoming apparent before 1914, both by encouraging the development of overcapacities in Britain and abroad in products like armaments, marine engineering, and especially machine tools, and by its disruption of international trade, which struck hardest at the export-oriented sectors.[16] Finally, and perhaps most importantly in the short-run, the painful and expensive experiences of engineering employers with the intensified shop floor militancy of the war and immediate post-war years - coupled with their frustration at government-enforced settlements which they believed to have favoured the unions - reinforced the determination that had been building up in the EEF before the war to seek another confrontation with the unions in

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15 Fridenson, 'Assembly Line'.

16 T.R. Gourvish, 'Mechanical Engineering', in Buxton and Aldcroft, British Industry between the Wars, especially pp.131-42; D.H. Aldcroft, 'The Performance of the British Machine-Tool Industry in the Inter-war Years', Business History Review, 40 (1966); Jefferys, Engineers, pp.200-201. S. Pollard, The Development of the British Economy, 1914-67 (2nd ed., 1969) pp.55-56; is rather too optimistic about the use of expanded wartime capacity after the war.

order to reestablish the hegemony of managerial prerogative in the workplace which had been eroded since 1898.[17]

Wartime full employment had promoted a massive expansion of union organisation, and the ASE grew from 170,000 in 1914 to nearly 300,000 in 1918; the newly created AEU had 450,000 members at its formation in 1920.[18] The first two years after the war saw a reconversion boom which kept the demand for skilled labour at close to wartime levels, and allowed the engineering unions to secure the long-desired 47 hour week. But by the beginning of 1921, the post-war boom had drawn to a close, and a severe depression struck the engineering industry; by July of that year 114,684 of 425,714 AEU members were unemployed.[19] In this changed economic climate, the employers launched their counter-offensive. The EEF had expanded rapidly in power and numerical strength during the war, growing from 714 member firms in 1914 to 1,469 in 1918 and 2,600 in 1921. One central component of this managerial offensive was a drastic attack on wages in the industry, including a 6% cut in the basic rate, the revocation of war bonuses, and a 15% cut in piece rates, demands accepted by the AEU under threat of a lockout in mid-1921. At the same time, the EEF became increasingly militant on questions it considered to involve managerial prerogative, including machine manning, the payment of apprentices, and the regulation of overtime, all of which were the subject of local strikes in 1921. Early that year, the Employers' Federation threatened a lockout over those issues, and it seemed only a matter of time before it would precipitate a major trial of strength with the unions.[20]

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17 Wigham, Power to Manage, pp.86-135; for the frustration of the EEF with government labour policy during the war, see J. Turner, 'The Politics of the Business Community during the First World War', (unpublished paper, Bedford College, 1979).

18 Jefferys, Engineers, pp.191, 194.

19 Ibid., pp.218-19.

20 Ibid., pp.218-22; Wigham, Power to Manage, pp.121-24.

In the event, it was the rejection by a ballot of AEU members of the Federation's claim that employers had the right to decide unilaterally when overtime should be worked, as well as to introduce changes in working conditions before the disputes procedure had been exhausted (the old disputed 'current conditions' clause), that led the EEF to lock out all AEU members in March 1922. In contrast to 1897-8, when employers had been anxious to isolate the ASE from other unions, the EEF felt so sure of itself that it threatened to lock out 46 other engineering unions unless they signed the memorandum defining managerial functions rejected by the AEU. In any case, the AEU was in no position to command solidarity from other quarters, since it had seceded from the Federation of Engineering and Shipbuilding Trades in 1918 (having only joined in 1905) and had thoroughly alienated the semi-skilled unions through its stand on dilution. The employers had other good reasons to feel confident: in 1921 the AEU had been forced to dispense over £2 million in unemployment benefits, and were completely unable to meet the threat of a major lockout, as the Executive, which had recommended that the members accept the EEF's demands, clearly recognised. By May 1922, the AEU's funds, which had amounted to some £3,250,000 at its formation, had dropped to £32,572, forcing the union to suspend all benefits except those to superannuated and disabled members. In June, the membership, recognising that further resistance was futile, voted to accept the EEF's revised definition of managerial functions, known as the York Memorandum.[21]

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[21] Jefferys, Engineers, pp.218, 223-27; Wigham, Power to Manage, pp.121-24. For a contemporary account from a managerial perspective, see A. Shadwell, The Engineering Industry and the Crisis of 1922 (1922); for the text of the managerial functions agreement, see Wigham, Power to Manage, pp.293-99. For an account of the lockout and its consequences in Coventry, see Carr, Engineering Workers, ch.4.

The immediate consequences of the employers' victory were two-fold: another drastic reduction in basic wage rates, together with a rapid decline in union membership, especially sharp in the new sectors. The reductions in wages extracted by the EEF in 1921-22 totaled some 32s: the average skilled fitter or turner's weekly basic rate fell from somewhere around 86s to 54s between June 1921 and September 1922. Insofar as basic rates remained close to total earnings (as they did in the early 1920s), these reductions meant a substantial decline in real income relative to the pre-war period: the cost of living had increased by 79% between 1914 and 1922, while skilled engineers' rates had increased by only 45%.[22]

By the end of 1922, the AEU had lost over 120,000 members from the time of its foundation, a decline of over 25%.[23] In the centres of the new industries such as motor car production, the union was virtually driven off the shop floor. In Coventry AEU membership had fallen by 57% in 1923 and by 80% in 1925, a decline which continued until the onset of rearmament in the late 1930s. By 1925, the union presence in the factories was so limited that it was obliged to send round a questionaire to the few surviving shop stewards in hopes of obtaining basic information about prevailing wage rates and working conditions; this state of affairs was typical of other centres of mass production such as Oxford as well.[24]

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22 Yates, British Engineering, pp.112-17, 133-34. Earnings data collected by the EEF show that the gap between basic rates and total earnings was still relatively small in this period. In 1926 average fitters' earnings totaled 60s 3d per week compared to basic rates of 56s. R.A. Hart and D.I. Mackay, 'Engineering Earnings in Britain, 1914-68', Journal of the Royal Statistical Society, Ser. A, 138, pt. 1, (1975), p.39. See also Table 14.

23 Jefferys, Engineers, p.227..

24 Carr, Engineering Workers, ch.5, especially pp.246-47; R.C. Whiting, The Working Class in the 'New Industry' Towns: The Case of Oxford (D.Phil, Oxford, 1977), chs.2-4.

The EEF's victory did not in itself solve the problems faced by engineering manufacturers. In the short term, employers had once again been able to reduce their wage bill drastically and to force the AEU to recognise their authority to reorganise production. But as they had discovered after 189[illegible] the formal powers conferred by victory did not automatically lead to an effective transformation of the division of labour in the industry, though the employers' victory in 1922 was even more complete than it had been in 1898. The ability of skilled engineers to contain the extent of change on the shop floor in the pre-war period, coupled with their employers' preference for the pursuit of secure profits in the short-run rather than more ambitious and risky investments in rationalisation and the development of new products, had ensured that adjustment to the emerging shifts in world demand would be exceptionally painful.

After the war, the depressed demand for engineering products, together with the intensification of foreign competition and the disruption of world trade, presented an especially unfavourable context for far-reaching rationalisation plans in the older sectors of the industry. In contrast to the period following 1897-8, the greater completeness of the employers' victory in 1922 and the persistence of mass unemployment in the older sectors ruled out any speedy revival of craft regulation on the shop floor which would inhibit managers' ability to impose radical changes in the division of labour. By that point, however, the barriers to rationalisation in the older heavier sectors imposed by the character of demand and the adaptability of the product to mass production methods loomed even larger than before 1914, resulting in a sharper divergence in the experiences of old and new sectors. In the section

which follows, we will consider first some general indices of the transformation of the division of labour in the industry as a whole and then attempt to specify further the experiences of the old and new sectors.

It is of course, quite difficult to formulate an overall judgement as to the extent of the transformation of the division of labour in this period, especially as regards the older sectors. Contemporary students of labour economics, such as J.W.F. Rowe and M.L. Yates saw the twenties and thirties as a period of rapid industrial change, in which the skills of the average fitter and turner were devalued, while the increasing sophistication of machinery required enhanced skills on the part of a smaller proportion of the workforce. As Yates wrote in 1937:[25]

> The post-war years have been marked by an increase in mass production methods generally, encouraged by and in turn giving further impetus to improvements in machine tools and workshop equipment. New techniques have vastly altered the way in which certain engineering products are made. In addition, greater attention has been paid to planning and production control, and to the question of subdivision of operations.

Generalisations of this kind, however, tend to exaggerate the extent of change by focussing on the most advanced firms and sectors. To specify the picture somewhat, we will need to examine some particular indices of change. One important index of this kind is the overall proportion of skilled and semi-skilled workers in the industry. Estimates of these for Federated shops are given in Table 13. These figures clearly show the rapid growth of semi-

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[25] Yates, British Engineering, p.16. See ibid., ch.2 and Rowe, Wages in Practice and Theory, pp.93-111, 263-71 for descriptive accounts of general changes in the division of labour and in the skills of particular groups of workers in this period.

skilled machine operators during the 1920s at the expense of the older skill structure based on fitters and turners assisted by labourers. Large numbers of the surviving skilled workers would now be serving as toolmakers and other workers on indirect production in the newer sectors; the number of toolsetters, for example, jumped from 8,000 in 1921 to 12,000 in 1931.[26]

Another sign of the transformation of the division of labour in the industry was the accelerated decline of apprenticeship. An inquiry conducted by the Ministry of Labour in 1925-26 discovered that only 32% of the youths under 21 in the industry were apprentices, with a further 11% classified as learners. By 1938 an AEU survey of 1,332 "fair-sized" firms showed that only 16% took indentured apprentices.[27] This decline was, however, highly concentrated in the newer sectors. In motor cars and electrical engineering fewer than 50% of the firms took apprentices, a condition which extended to the Midlands and the Southern counties taken as a whole; aircraft alone of the new sectors relied heavily on apprenticeship. In the older sectors centred in the North, such as textile engineering, marine engineering, and locomotive building, 75 to 85% of the firms still employed apprentices and learners, though in 'general engineering' the proportion stood at 60%.[28] While apprenticeship was on the wane, the use of boy labour in the industry was not: the number of boys per 1000 workers in engineering itself increased between 1911 and 1921 from 239 to 258 among fitters, and from 166 to 246 among turners.[29]

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[26] Yates, British Engineering, p.31.

[27] Ministry of Labour, Report on Apprenticeship and Training, 1925-26 (1928), vol. VI, pp. 6-7; Jefferys, Engineers, p.205.

[28] Ministry of Labour, Apprenticeship, vol. VI, p.9.

[29] Ibid., vol. VII, p.51.

But even where apprenticeship persisted, the quality of the training continued to decline, as piecework and repetition production rendered it increasingly a system of cheap labour rather than a royal road to craft training; Love on the Dole is the classic, if fictionalised, account of this process.[30] An additional indication of the demise of apprenticeship regulation can be discerned in the fact that 90.3% of all apprentices now were forced to serve an additional term of one to two years as 'improvers' before they received the district rate.[31]

A further index of the erosion of craft regulation in the industry as a whole was the general extension of payment by results. There had been a significant expansion of payment by results under the auspices of the Ministry of Munitions during the war, a change that proved more difficult than dilution to roll back with the armistice. After the employers' victory in 1922, the unions found themselves unable to resist a managerial offensive in this area. According to the EEF, the proportion of workers on payment by results jumped between 1923 and 1927 from 41% of turners and 51.7% of fitters to 51.7% and 63.4% respectively.[32] It is difficult to tell how far this extension of payment by results was accompanied by other changes in the division of labour rather than reflecting those which had already occurred. Moreover, these figures conflate ordinary piecework with the introduction of premium bonus systems associated with more radical changes in the division of labour, particularly in the lighter sectors where mass production was advancing most rapidly.[33]

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[30] W. Greenwood, Love on the Dole (1933, reprinted, Harmondsworth, 1965); Jefferys, Engineers, p.206.

[31] Ministry of Labour, Apprenticeship, vol. VI, pp. 34-35.

[32] EEF, Thirty Years of Industrial Conciliation (1927), p. 35.

[33] Yates, British Engineering, pp. 80-95.

Even more than during the pre-war period, the distinction between the older, heavier sectors and the newer, lighter sectors is absolutely fundamental to an understanding of the transformation of the division of labour in the industry. The 1920s were a bad period for the British engineering industry as a whole. In 1913, the UK was responsible for 30.4% of total world exports of machinery, to 25.9% for the US and 32.5% for Germany; by 1926, the proportions had shifted to 25.63% for the UK, to 37.64% for the US and 23.35% for Germany.[34] The percentage of the total product exported dropped from approximately one-half in 1907 to between one-quarter and one-third from 1924-35, and an increasing proportion of the surviving exports went to protected Empire markets.[35]

This decline was concentrated in the heavier sectors that had formed the mainstay of British engineering in the second half of the 19th century, especially textile machinery, marine engineering, and prime movers and boilers. These three sectors, which in 1907 had comprised half of gross mechanical engineering output, by 1935 had fallen to just one-quarter.[36] In textile-machine making, one of the most seriously affected sectors, output declined from 121,054 tons in 1913 to a nadir of 65,486 in 1925, and demand showed little signs of revival in this period.[37] In most other heavy sectors, the situation was analogous, if somewhat less extreme, though a few relatively small trades - printing and book binding machinery, mining machinery, tobacco processing machinery, and dairy machinery - continued to hold their own in export markets.[3]

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[34] Balfour Committee, Survey of the Metal Industries, p.205.

[35] Jefferys, Engineers, p.198; Gourvish, 'Mechanical Engineering', pp.131-32.

[36] Ibid., p.133.

[37] Balfour Committee, Survey of the Metal Industries, p.193.

[38] Ibid., pp.168-69, 198-2.4; Gourvish, 'Mechanical Engineering' pp.133, 142-43.

The lighter sectors, on the other hand, presented a much less gloomy picture. The value of output in the motor car industry, for example, more than doubled between 1922 and 1927 while the industry's share of the home market increased from 49% in 1922 to 82% in 1927. The motorcycle sector also boomed in this period, as the value of output jumped from £1.6 million in 1912 to £5.9 million in 1924. Similarly, the British electrical engineering industry was becoming more competitive in world markets, as its share of world exports increased from 23.53% in 1913 to 29.02% in 1926.[39]

Consequently, the 1920s saw a radical shift in the internal occupational structure of the British engineering industry. The proportion of workers employed in the older sectors declined dramaticallly: shipbuilding and marine engineering, which had accounted for 25% of all metal workers in 1907, dropped to 14% in 1925 and 7.4% in 1935, while textile engineering employed just 3.5% of the total in 1935. The newer sections, by contrast, expanded rapidly: electrical engineering, which had employed some 5% of metal workers in 1907, comprised 15.4% in 1924 and 22.5% in 1935, while vehicle construction expanded from 7.4% of the total in 1907 to 20.4% in 1924 and 28.5% in 1935.[40]

The result of this shift was that while employment in engineering and shipbuilding increased slightly from 985,000 in 1924 to 1,073,400 in 1930, a huge number of workers in the older sectors became permanently unemployed. Between 1922 and 1935, unemployment among AEU members never fell below 8%,

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[39] Balfour Committee, Survey of the Metal Industries, pp.217-18, 225, 337; M. Miller and R.A. Church, 'Motor Manufacturing', in Buxton and Aldcroft, British Industry Between the Wars; Catterall, 'Electrical Engineering' in ibid.

[40] Jefferys, Engineers, pp.198-99.

reaching 30% in the worst years, but the picture in particular trades was even bleaker than even these figures suggest.[41] According to the Ministry of Labour, more than 100,000 workers permanently left the general engineering sector between 1923 and 1928, while 15,000, (a much higher proportion), left marine engineering during the same period. Added to these numbers must be the 9.7% of general engineers and 13.4% of marine engineers registered as unemployed as well as the substantial numbers working short-time. In textile engineering, perhaps the worst hit sector, 37% of those employed were working an average of 16.5 fewer hours than the normal 47 hour week.[42]

These figures show clearly that the changes in the skill structure of the industry as a whole came about largely through a simultaneous expansion of the newer sectors using mass production techniques and a contraction of the older sectors in which skilled workers were concentrated. These changes in the occupational structure were directly reflected in a continuous decline in AEU membership, which fell from 333,123 in 1923 to 218,339 in 1927.[43] What appears to have occurred, quite simply, is that the decline of the older sectors resulted in the permanent unemployment of perhaps one-quarter of the skilled workforce in engineering and shipbuilding. Those most likely to suffer unemployment were the older and less adaptable skilled workers, for whom finding new employment would by most difficult. Furthermore, such workers could not

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41 Ibid., pp.197-98

42 Yates, British Engineering, pp.9-11, 128.

43 Jefferys, Engineers, p.296.

easily transfer to the newer branches of the industry; not only were their skills in reduced demand in the mass production sectors, but these were concentrated in the South and the Midlands, while the bulk of the unemployed in the heavier sectors lived in the older manufacturing districts of the North.[44]

In this bleak economic context, it does not appear likely that employers in the older sectors implemented a broad transformation of the division of labour, since such measures required capital investments unwarranted by declining demand. Hence employers probably confined themselves to such measures as wage cuts, short-time work, extensions of piecework, and the promotion of the semi-skilled onto existing or replacement machines. According to the survey of the depressed areas conducted by the Board of Trade in 1932, the rationalisation schemes implemented by manufacturers in these sectors were largely confined to the merger or amalgamation of companies with an eye to the reduction of total capacity. Mechanisation in these sectors seems to have been quite limited, especially on the Northeast Coast.[45] The limited progress of rationalisation in these sectors is reflected in the slow growth of productivity: thus despite difficulties in calculation it seems safe to say that output per man hour in mechanical engineering (which excluded vehicles and electrical goods) grew more slowly than in manufacturing industry as a whole between 1924 and 1935, though the record appears to have been better in the first half of the period, when demand was higher and when employers' strategies of work intensification and cost-cutting had begun to be effective.[46]

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[44] Ibid., p.199.

[45] Board of Trade, Industrial Survey of the North-East Coast (1932), pp.183-84; Southwest Scotland (1932), pp. 67, 137-39; Lancashire, (1932), pp.157-61.

[46] Gourvish, 'Mechanical Engineering', pp.143-44.

In the lighter sectors, on the other hand, where demand was increasing rapidly, manufacturers found it worthwhile radically to transform the structure of the division of labour, so that it is appropriate to speak of rationalisation. In the motor car industry, employers were able to introduce a wide range of new techniques, of which the most famous is the assembly line, while output was speeded up by the widespread use of piecework, bonus schemes, and aggressive supervision.[47] As a result, output per man hour in the motor industry roughly doubled between 1924 and 1935 while rising by only a quarter in manufacturing industry as a whole.[48] Similarly, in electrical engineering manufacturers introduced fully automatic special-purpose machinery on a large scale, especially in mass production sectors such as lamp making; by 1929 women comprised 20% of engineering workers in London, the centre of electrical engineering.[49] Productivity seems, however, to have risen only slightly faster in this sector than in manufacturing industry as a whole, apparently because of the labour-intensive methods used by many of the infant consumer durable firms.[50]

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47 On conditions in the car factories, see Carr, Engineering Workers, chs.4-5; Whiting, 'New Industry' Towns, chs.2-4; A. Exell, 'Morris Motors in the 1930s History Workshop Journal, 6-7 (1978-79). On technical change, see R.A. Church, Herbert Austin (1979), pp.98-101; Fridenson, 'Assembly Line'.

48 Miller and Church, 'Motor Manufacturing', p.184.

49 Yates, British Engineering, p.158. For a detailed examination of production methods in London engineering firms in 1930, see E.M. Hugh-Jones and F.F. Turnbull, in H. Llewelyn Smith, (ed.), The New Survey of London Life and Labour, (1931), vol. II.

50 Caterall, 'Electrical Engineering', pp.254-55.

The small but strategic machine tool sector seems to have charted a course in between those of the old and new trades. Depressed by over-capacity generated during the war and by the decline of demand from the older sectors in the mid-1920s, British machine tool makers cut back their investments and moved only slowly into the specialised and automatic tools which dominated international trade and demand from the newer sectors at home. Consequently, the British share of world exports of machine tools dropped by one-half between 1923 and 1937 despite a large increase in world demand, while the inability of British makers to supply certain 'gap' machines and to meet peaks in demand ensured that imports represented 56% of exports in the 1920s and actually exceeded the latter in the 1930s, largely as the result of large quantities of imports after trade revived in 1936. Yet the period saw the growth of a small number of large firms using standardised and specialised methods who controlled roughly one-third of total output in the 1930s (more in the most advanced products), and output per man rose by 40% in the industry a whole between 1924 and 1935, much faster than in other older sectors.[51]

The completeness of the AEU defeat in 1922 coupled with the persistance of mass unemployment in the older sectors meant that these variations in the pace of technical change in different sectors owed rather more to the pattern of demand and the suitability of the product for mass production than to the retardative role of workers' resistance. In the newer sectors such as motor cars, craft unionism hung on only in isolated occupations such as sheet metal work, coppersmithing, and to a lesser extent in the toolrooms. As a result, employers enjoyed more or less untrammelled freedom of action in the car factories, which were marked by arbitrary discipline, poor working conditions

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51 Aldcroft, 'Machine-Tool Industry'; Gourvish, 'Mechanical Engineering', pp.140-42.

seasonal and cyclical layoffs, and unilateral managerial control over piecework prices during this period.[52] In the older sectors, where skilled workers had more to lose, it seems likely, as Yates suggests, that they became "...more accomodating and less rigid in the interpretation of union rules concerning what work may be done", though as we have seen, the extent of change was in any case relatively limited.[53]

The AEU itself, seeing the collapse of its position in the industry, officially converted itself into an industrial union recruiting all grades of male workers, though organising the non-craftsmen into separate sections with lower benefits. Though the semi-skilled entered the union in large numbers after 1926 - the proportion of skilled men dropped from three-quarters in 1920-25 to just over half in 1936-39, and the semi-skilled were of course more prominent among new admissions - this widening of recruitment can in large measure be viewed as a strategy of containment through incorporation whereby craftsmen hoped to minimise the threat posed to their position by the semi-skilled by bringing the latter into the union where they could be more easily controlled. At the same time, many AEU branches resisted the new strategy, refusing well into the 1930s to enroll members in the non-craft sections, a position that received some support from national officials.[54] The AEU continued, moreover, to oppose the upgrading of the semi-skilled onto skilled men's work throughout the 1930s, and when rearmament began to generate shortages of skilled labour it resisted dilution despite its conversion to industrial

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[52] See the sources cited in note 47 above

[53] Yates, British Engineering, pp.51-52.

[54] Jefferys, Engineers, pp.228, 235-36; See the quotation from a private exchange between AEU and TGWU officials in 1931 in Whiting, 'New Industry' Towns, p.131.

unionism; similarly, when the union reluctantly accepted dilution under pressure of military defeat in 1940, it nonetheless obtained guarantees of the restoration of pre-war practices, and remained closed to women until 1943.[55] Against this should be set the considerable evidence of a transformation of attitudes among rank and file militants, many of them Communists whose ideology in principle inclined them to a broader class outlook; recent interpretations of the shop steward movement in the late 30s and 40s have emphasised the role of Communist skilled aircraft workers in the unionisation of the shadow car factories established after 1936, and in imparting techniques of piecework bargaining and shop steward organisation to the less skilled.[56]

Despite the inroads of foreign competition and the depression, the older sectors of the industry did not entirely disappear, and some like marine engineering and, of course, machine tools, experienced a certain revival after 1936; nor did the sectionalism of the skilled engineers vanish entirely, even in the newer sectors. But when trade union militancy revived in engineering after 1936, its focus had shifted to the mass production sectors; insofar as craftsmen participated in this upsurge it was more as toolmakers or aircraft workers than as fitters and turners.[57]

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55 On the 1930s, see J. Hilton, et al. Are Trade Unions Obstructive? (1934), pp.143-50; EEF, Industrial Conciliation, pp.20-26; Jefferys, Engineers, pp.245-47, 259-60; Whiting, 'New Industry' Towns, pp.127-32, 245-59; R. Croucher, Communists and Shop Stewards in British Engineering, 1936-45, (Warwick Ph.D. 1978), p.40; Exell, 'Morris Motors', pt. II, p.58. On the war, see P. Inman, Labour in the Munitions Industries, (1957) and J.T. Murphy, Victory Production (1942), pp.12-23.

56 Croucher, Shop Stewards; N. Fishman, 'Craftsmen, Communists, and Shop Stewards in the Aircraft Industry' (unpublished paper, Birbeck College, 1979)

57 See Whiting, 'New Industry' Towns; Croucher, Shop Stewards; Fishman, 'Shop Stewards'; and my own essay, 'The Emergence of Shop Steward Organisation and Job Control in the British Car Industry', forthcoming in History Workshop Journal 10 (Autumn 1980).

Printing between the Wars

Printing, by comparison with engineering, was much more peripheral to the war economy, and wartime developments have remained,with good reason, the province of specialist historians of the industry.[58] The main thrust of the war experience was to intensify the tendencies of development which we have argued were already evident before 1914: the wartime shortage of skilled labour strengthened the prewar trend towards the consolidation of craft regulation. The initial effect of the war on printing, as on other industries, was to depress commercial activity and thereby to put men out of work: at the beginning of 1915, unemployment had reached some 10% among compositors. But as the conflict wore on, the revival of commercial activity coupled with the army's need for manpower began to create severe shortages of skilled labour. As in engineering, pressures were set under way for the relaxation of trade union work rules and the acceptance of dilution. The TA and the STA agreed to relax some of its work rules in return for a strict guarantee from the employers of the restoration of pre-war practices, but both adamantly rejected any moves toward female dilution; the LSC refused even to relax its work rules. This temporary flexibility on the part of the provincial unions meant that overtime restrictions were lifted; that compositors, readers, and machinemen could be interchanged; that apprentices could be advanced sooner onto machine work; and that printers were no longer prohibited from holding two jobs at the same time. In every case, however, the TA insisted that the higher rate be paid, while the final decision as to whether the relaxation of rules was left in the hands of local branches and chapels.[60]

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[58] This section is largely based on the following secondary accounts; Musson, TA, ch.15; Gillespie, STA, chs. 12-13; Howe and Waite, LSC, chs. 15, 18; and Child, Industrial Relations, ch.14.

[59] Ibid., pp.219-20; Musson, TA, p.366.

[60] Child, Industrial Relations, pp.220-22; Musson, TA, pp.366-68.

These concessions were not, in practice, sufficient to alleviate the labour shortage caused by the war: by the beginning of 1917 manpower in the printing industry as a whole had been reduced by 50% and some 30-40% of monotype keyboards were standing idle, with parallel shortages elsewhere.[61] Employers, particularly in the provinces, accordingly attempted to introduce women as monotype operators and in other skilled positions, giving rise to many disputes, which as Musson informs us were largely successful in blocking such initiatives.[62] When the war ended, therefore, the unions were in a good position to insist on a speedy reversion to pre-war practices.

The tightened control of the typographical unions during the war had a number of consequences, some with implications for the longer term. First, skilled printers were able to keep their earnings rising at close to the rapid pace set by inflation through a flurry of advances granted between 1916 and 1920. In 1919, the general pressure of inflation on the industry's wage structure led to the negotiation of a single national agreement between the PKTF and the FMP, which created a uniform (though afterwards hotly contested) set of differentials between the various printing trades, and between London and the various grades of provincial towns. At the same time, printing workers secured the long sought-after 48 hour week, with 42 hours for night work.[63] Second, the war years saw a pronounced growth in unionisation. As we saw in chapter V, it was during the war that the LSC obtained the re-unionisation of the large book firms that had rejected the 50 hours in 1911, and the total membership of the union grew from 12,384 in 1914 to 15,500 in 1920, much faster

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61 Musson, TA, p.366.

62 Ibid., pp.367-68.

63 Child, Industrial Relations, pp.222-29; Musson, TA, pp.369-70, 376-83, 387-94; Gillespie, STA , pp.157-58, 173; Howe and Waite, LSC, pp.244-53, 287-91, 302-6.

than before the war.[64] The TA, for its part grew more modestly during the war itself, from 23,783 to 24,762 (though it reached 31,234 in 1920), but began to unionise new areas more effectively, especially in the Southeast.[65]

Finally, despite the temporary relaxation of trade union work rules in some areas during the war, the long-run effectiveness of craft regulation was enhanced; this tendency was more evident in the English provinces where craft regulation had been weaker before the war than in London where it had been quite securely entrenched. The 1919 National Agreement contained a renegotiation of the 1911 agreement on the TA rules revision, which was on the whole quite supportive of craft regulation: composing machine indicators, bonuses, and task work were definitively abolished; the apprentice scale was maintained despite calls from employers for its extension; while the overtime limit was restored to 16 hours per fortnight as opposed to the more rigid eight hours per week demanded by the 1913 TA Delegate Meeting, most of the exceptions permitted in the earlier agreement were abolished.[66]

It was not merely the content of the 1919 National Agreement, but also the formal procedures for industrial relations it established which signalled the favourable balance of forces between printing workers and their employers. In contrast to the disputes procedures in engineering, which were imposed on the defeated unions by the employers, the Joint Industrial Council was established as a result of a voluntary agreement between the NPKTF and the FMP,

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64 Ibid., p.340.

65 Musson, TA, pp. 371, 540.

66 Ibid., pp. 383-87.

along lines proposed in the pre-war period.[67] While its constitution recommended that no strikes or lockouts take place before consultations had been held at national level, there was no enforcement mechanism, and the Joint Labour Court, charged with arbitrating disputes still unresolved after such national negotiations, was likewise a voluntary body whose decisions were not binding on the unions. While the TA and other printing unions had been prepared to accept such a scheme before the war, the more militant LSC had held aloof; now, presumably, the greater security of craft regulation combined with the success of Federated action in 1911 and the advantages of national bargaining in a period of rapid inflation convinced this union to renounce provisionally the leverage afforded by sudden and sectional strike action. The favourable character of the new procedure by contrast to that in engineering can likewise be seen in the fact that the printing unions were able to secure the employers' agreement that the status quo before any changes had been initiated by either side should prevail while points were under conciliation, whereas it had been the engineering employers' insistence that 'current conditions' meant those in force after a managerial initiative which touched off the 1922 lockout.[68]

With the relaxation of labour shortages attendent on demobilisation, the collapse of the post-war boom and the sharp drop in the cost of living after 1920, printing employers began to agitate for a reduction of inflated wartime wage rates. The position of the NPKTF was undermined by the TA's decision to negotiate separately with the FMP in the fall of 1921, which

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[67] See above, pp. 303-4.

[68] Child, Industrial Relations, ch.16; Musson, TA, ch.18.

paradoxically resulted in larger reductions being accepted by the provincial unions than by the LSC and the Stereotypers, another highly skilled craft society (7s 6d v. 5s). The employers' demand for a new round of wage cuts the following spring met a similarly divided response from the unions. The Scottish unions accepted a flat 15s reduction, while the TA once again insisted on separate negotiations. The employers' claim was then submitted by mutual agreement to the newly formed Joint Industrial Council for arbitration, which recommended a staged reduction of 12s 6d. The TA Executive then ballotted its members, whose refusal of these terms precipitated a four week strike. Isolated from the other printing unions by its sectionalist policies, the TA was eventually forced to accept the original reduction, while the LSC and others escaped with a 6s cut. Some particularly well-organised groups, such as the London newsmen, were able to prevent any reduction at all in the new piece scale negotiated in 1920 at the height of the post-war boom.

Yet even the STA and TA members who had suffered the most severe reductions remained significantly better off in real terms than in 1914. And it is likewise a noteworthy testament to the entrenchment of craft regulation in the industry that the TA's defeat in 1922 did not, as in engineering, result in a major reassertion of managerial prerogative, or even a demand for the renegotiation of the unions' work rules accepted by the employers in 1919. Only a small number of employers converted to a non-union basis, and the largest of these, the Newcastle Chronicle, had been reunionised by 1925.[69]

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[69] Child, Industrial Relations, pp.271-75; Musson, TA, pp.387-402; Howe and Waite, LSC, pp.244-47.

The inter-war years were a period of general prosperity for the printing industry, whose insulation from foreign competition and concentration on the home market saved it from the fate of the staple export industries. Employment in printing, publishing, and bookbinding therefore rose significantly faster than in industry as a whole between 1925 and 1936, though its rate of growth slackened off somewhat in the 1930s.[70] The fastest growing sector was the London-based national newspaper press: as newspapers enjoyed their greatest prominence as a form of mass communication, the total circulation of the national dailies grew from 3.1 million in 1918 to 4.7 million in 1926 and 10.6 million in 1939. Much of this expansion came at the expense of the provincial press whose circulations grew more slowly, whose numbers declined, and whose ownership became progressively more concentrated in the same period.[71] While the pre-war trend for large-scale specialised printing of books and monthly periodicals to move out of London continued into the 1920s and 30s, the expansion of the national newspapers and particularly the vast growth in printed advertising meant that the overall decline of printing employment in London relative to the provinces was reversed.[72]

The general buoyancy of the industry kept unemployment at roughly half the level of all industries between 1921 and 1936; at its worst in 1932, when a quarter of all ensured men were unemployed, the figure stood at 12%

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70 Child, Industrial Relations, p.234; Musson, TA, pp.403-4.

71 G. Murdock and P. Golding, 'The Structure, Ownership and Control of the Press, 1914-76', in Boyce, Curran, and Wingate, Newspaper History, pp.130-38; and the estimates for circulations in W.A. Belson, The British Press: Part III. An Historical Outline of Developments and Trends Affecting the British Press (duplicated, n.d., 1958?) I am indebted to Keith McClelland for supplying this last reference.

72 A.D. Denning, S.K. Ruck, and S.C. Sutton, 'Printing and Bookbinding' in Llewelyn Smith, New Survey of London Life and Labour, vol. V, p.226; Hall Industries of London, ch.6.

in printing.[73] Compositors, whose numbers were not keeping pace with overall output, were less affected than other trades, especially in London, though no statistics are available. Such technical change as was introduced during this period mainly affected the pressroom and other departments of printing such as lithographic and intaglio work. In the composing room, the main trend was the increasing replacement of case hands by the better paid machine operators: according to the incomplete returns of the censuses, the number of machine operators in England and Wales grew from 3,156 in 1911 to 11,954 in 1931.[74]

In this context, the inter-war years saw a reinforcement of the pre-war tendency for the consolidation of craft regulation in the wake of the capture of composing machines by skilled workers, and a reversal of the declining social and material position of the compositor which had not yet made itself fully felt before 1914. These trends can be discerned in the increasing strength and extent of trade union organisation, in the increasing effectiveness of craft regulation as such, and in the sharp rise in compositors' earnings relative to the cost of living and to those of other skilled trades.

Unionisation levels rose markedly during this period, as unorganised pockets began to disappear. In London union density reached 90%, while in the provinces major steps were taken to organise the black spots of the Home Counties. The TA's membership grew from 24,762 in 1918 to 38,277 in 1939, despite fall offs in the post-war slump and the depression of the early 1930s;

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[73] Child, Industrial Relations, pp.234-35.

[74] Musson, TA, p.405. These figures probably underestimate the number of case hands: I.C. Cannon suggests that the proportion of machine operators in London did not exceed 25% of the total in this period. Cannon, Skilled Worker, pp.235, 253.

Musson estimates that the union had organised 80% of its potential membership in 1930, though the proportion was doubtless higher among compositors and increased overall in the 1930s.[75] These gains did not occur without setbacks, of which the most serious were associated with the aftermath of the general strike. A number of provincial firms organised house unions in hopes of binding their workers to themselves more closely, and the TA's unsuccessful attempt to oppose the formation of such a union at the Manchester Guardian led to the expulsion of 200 of its members. More serious was the decision of Scottish newspaper proprietors in Aberdeen, Dundee, Edinburgh, and Glasgow to establish house unions, which unlike their English counterparts did not permit employees to retain trade union membership as well. The reunionisation of large sections of the Scottish newspaper industry thereafter occupied the STA without success until the Second World War.[76]

We have already noted the growing effectiveness before and during the First World War of trade union work rules concerning the regulation of labour supply, overtime, casuality, and the operation of composing machines, and this tendency continued uninterrupted during the interwar years. In the provinces, the FMP accepted a favourable version of the TA's rules as part of the 1919 National Agreement, and this was never challenged thereafter; in London, the various Scales accepted by all union houses contained detailed prescriptions concerning working methods as well as rates of pay, and these too were not relaxed during this period. The improved effectiveness of craft regulation was most evident in the restriction in the number of apprentices.

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[75] Ibid., p.235; Musson, TA, pp.407-9.

[76] Child, Industrial Relations, pp.251-53; Gillespie, STA, pp.219-23.

A survey conducted by the Ministry of Labour in 1925-6 in cooperation with the FMP and the Newspaper Society covering some 4,000 firms showed the vitality of apprenticeship regulation: the overall average for Britain was one apprentice to 5.3 journeymen; in London the ratio was 1:7.5, and in the provinces 1:4.5. Apprentices were banned from daily papers in London, and the ratio in the provinces was 1:5.2 on weekly papers, 1:9.5 on evening papers, and 1:16.5 on morning papers. 82.6% of all apprentices were bound under verbal or written agreements, depending on the custom of the district.[77] In 1909, a more restricted survey had put the number of journeymen per trainee (including learners) at 1:3.7 nationally; by 1925, the ratio had improved to 1:4.1. Not only was regulation improving in relation to the apprentice: journeymen ratio, but the proportion of boy labour in composing rooms was falling as well: among compositors employed in all industries, the number of boys under 21 per 1,000 workers dropped from 143 in 1911 to 92 in 1921; in printing alone the figure declined from 153 to 93. (1911 itself already appears to show a considerable improvement on 1901: in all industries, a composite figure for compositors, stereotypers and electrotypers, and letterpress machine minders stood at 247 boys per 1,000 workers; by 1911 the figures stood at 143, 152 and 152 respectively.) By way of comparison, we should recall that the analogous figures for fitters and turners in 1921 were 258 and 246 per 1,000 respectively.[78]

The fall in compositors' wage rates in the early 1920s by no means equalled that of the cost of living, so that as a result they were markedly

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[77] Ministry of Labour, Apprenticeship, vol. I, pp. 9-16.

[78] Ibid., Vol. VII, pp.46, 54.

better off in real terms than before the war. The cost of living fell by 35% between 1921 and 1925, while London case rates fell by only 10%, and those of the TA by 18-25%; since the reductions were flat rates they affected the better paid machine operators proportionately less, while in London the news piece scales were not reduced at all.[79] We have noted as well the declining incidence of piece-stab and casuality, so that the average compositor's position had probably improved more since 1900 than these figures suggest, since the major forces depressing earnings below stab rates had been removed. Wage rates remained stable throughout the 1930s, so that compositors suffered no further cuts in the slump, but in turn fell behind relative to the cost of living and national earning trends in the economic revival after 1936.[80]

Before 1914, and particularly before 1900, compositors had complained that their earnings were falling behind those of other skilled trades, especially in London. As a result of their success in defending their wartime gains, as well as of the increases won for machine operators before the war, compositors appear to have drawn ahead of other categories of skilled workers between the wars. Table 14 attempts to set out some comparisons with other skilled trades, including engineering.

As we have argued earlier, information on workers' earnings as opposed to their wage rates is notoriously scarce, and this undermines generalisations about real wages, both absolutely and between trades. The figures given in Table 14 avoid some of the main dangers usually involved in such comparisons,

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[79] Child, Industrial Relations, p.282; Musson, TA, pp. 394-401.

[80] Child, Industrial Relations, pp. 282-83.

though they are not without problems of interpretation. The compositors rates given are minimum rates for jobbing case work, and actual earnings of large sections were much higher. All machine operators in the TA earned at least 6s - 8s 6d above case rates, and morning news machine rates were pegged from 1923 at 83s 6d - 103s; the LSC's minimum machine rate was 96s and 160s for morning machine hands, though most of the latter were paid by the piece and earned even more. Case hands on daily papers and night jobbing hands also were paid above ordinary rates. From 1937, moreover, the hours of printing workers were reduced to 45 per week. Unfortunately, there is no way of weighting the respective numbers of each group to produce a more effective index of earnings, though if the census figures are to be believed the better-paid machine hands were rapidly displacing the case hands in this period.[81]

While the figures for compositors are minimum rates, we fortunately possess a new series for engineers' earnings, drawn from surveys conducted by the Employers' Federation. These suggest that there was little divergence between wage rates and earnings before 1914, but that the spread of piece rates gave rise to wage drift in period of rapid expansion of output such as the late 1920s and late 1930s: thus fitters' earnings exceeded district rates by only 4s 3d in 1926 and 4s 2d in 1932, but by 8s 1d in 1929 and 15s 6d in 1938.[82] But even comparing minimum rates of compositors to fitters' earnings it is evident that the former stood well ahead of the latter until the rearmament boom of the late 1930s, by which time high wage sectors like motor

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[81] Musson, TA, chs. 16, 19, passim; Ministry of Labour Apprenticeship, vol. I, p.36.

[82] Hart and Mackay, 'Engineering Earnings', pp.38-39.

cars had become dominant in engineering while compositors' rates were no longer keeping pace with inflation though their hours were shorter; an index of real earnings would magnify the compositors' advantage through most of the period and most likely preserve it even at its end.

As a result of these global changes in the social position of the skilled compositor, there is some evidence that the inter-war years saw an upgrading of the social basis of recruitment to the trade, particularly in London. While commentators before 1914 had remarked that compositors' sons were less likely to follow their fathers' trade than those of other more secure groups such as machine minders, and managers complained of the low quality of apprentices, an interview-based survey conducted by I.C. Cannon in London in the 1950s suggests that the proportion of apprentices drawn from compositors' sons and from middle class backgrounds increased during the inter-war years. While Cannon's sample procedures are unreliable, impressionistic evidence confirms that he has correctly identified the prevailing trends.[83]

## Conclusions

The divergences in the trajectories of skilled engineers and compositors which had already become apparent before the war widened markedly during the interwar period. As we have seen, the skill structure of the engineering

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[83] Cannon, Skilled Worker, pp.122-13. On the decline of generational succession and social quality among printing apprentices before the war, see above, pp.165-66.

labour force changed rapidly during these years, while the ability of skilled craftsmen and their unions to regulate working conditions on the shop floor became increasingly frayed after 1922. In printing, by contrast, compositors' control over labour supply and working conditions became progressively more effective after 1914, despite some setbacks in the provinces and on Scottish newspapers. These divergences can be seen across the whole range of possible indicators which have been examined in this chapter, including the movement of real wages, but perhaps the most important single difference lay in the decline of apprenticeship in engineering and its marked reinforcement in printing.

The divergent economic positions of the two industries undoubtedly contributed to the respective fates of their skilled workers, especially in the contraction of the older engineering sectors in the 1920s. But the seeds of the long-term decline in the effectiveness of craft regulation in engineering had already been sown before 1914, when the situation of the older sectors was much less critical, and its short-run survival likewise contributed to their stagnation during the immediate pre-war period; both the decline of the older sectors and of craft regulation would most likely have continued even without the disruption of international trade after the war. Conversely, the prosperity of the printing industry between the wars by no means explains the improved position of the compositors, since this economic trajectory had continued unchanged since the 1870s; compositors' gains depended on the prior improvement of their framework of craft regulation resulting from their successful capture of composing machines before the war. It was likewise the failure of the engineers to entrench themselves in the newer growth sectors of the industry before 1914, together with their inability to forge a durable alliance with the less skilled, that exacerbated their

decline after 1922. Thus in each case, the impact of economic change on skilled workers' position in the division of labour was mediated by the balance of forces between workers and employers whose importance we have underlined throughout our account. In the concluding chapter, we will attempt to draw together the various threads of our argument to explain the differential abilities of skilled compositors and engineers to defend their position in the division of labour in the face of pressures for technical and organisational change.

# Chapter VIII

## The Sources of Bargaining Power

On the eve of a major wave of technical and organisational innovation in 1890, skilled workers occupied a central place in the division of labour in both printing and engineering. In each industry they defended this position inside and outside the workshop with an elaborate framework of craft regulation, though by the 1880s its effectiveness was being increasingly challenged by diverse pressures from the employers in engineering and printing alike. Compositors in printing, fitters and turners in engineering, each found their position deteriorating in the face of their employers' efforts to cheapen and intensify hand labour by manipulating systems of payment and supervision, by multiplying the number of apprentices, by resorting to systematic overtime and casual labour, and by experimenting with old and new forms of mechanisation. To be sure, subtle but significant differences were discernable in such matters as the effectiveness of apprenticeship regulation in the two trades, as were more basic variations in the history and dynamism of the division of labour. But few contemporaries would have suggested that the compositors in their three regional typographical unions were better organised or more secure than the fitters and turners of the ASE, which having spawned a range of imitators in the 1860s remained among the largest and most influential forces in the labour movement.

By 1914, and even more clearly by 1930, the two trades had embarked on markedly divergent paths. Despite the relative success of skilled

engineers' guerilla campaign against the Terms of Settlement and against the employment of handymen on machines after 1898, the long-term prospects for craft regulation in the industry were being subverted by the decline of apprenticeship and the extension of new systems of supervision and payment by results. By the time of the General Strike, the ASE (now the AEU) had been defeated in its second major confrontation with the EEF in 25 years, had suffered spectacular wage cuts, and had seen a quarter of its inflated wartime membership slip away. In its heavy engineering strongholds - Clydeside, Lancashire, and the Northeast coast - mass unemployment prevailed, though depressed market conditions prevented employers from taking advantage of the collapse of craft regulation radically to restructure the division of labour. In the prosperous new mass production centres of London and the West Midlands, the union had been effectively driven off the shop floor after the 1922 lockout, while craftsmen were increasingly confined to new roles in indirect production. As employers throughout the industry enjoyed unprecedented freedom of action on the shop floor, the proportion of skilled men in Federated workshops dropped to little over one-third, apprenticeship virtually disappeared outside certain of the old sectors, and a large majority of AEU members found themselves working under systems of payment by results.

The compositors by contrast emerged from the war in a position of unparalleled strength. Despite post-war wage cuts in the provinces, printers had become the best paid manual workers of the period. The typographical unions throughout the country had secured virtually complete control over composing machines at substantial advances over hand rates. At the same time, they had obtained official recognition from the employers for restrictions on the number of apprentices and other work rules which

gave them an effective stranglehold over labour supply, particularly in Fleet Street.

Why were compositors so much more successful than engineers in defending (and even enhancing) their position in the division of labour and in enforcing craft regulation in the face of pressures towards technical and organisational change? Certain historians of printing have sought to explain the compositors' capture of mechanical typesetting primarily by reference to the judicious strategy adopted by their leaders in relation to the new machines.[1] While the typographical unions did on occasion display a shrewd tactical sense of when discretion formed the better part of valour, as for example over the issue of payment for tuition on the machines, this argument cannot withstand a comparative test. In rejecting such arguments we are not asserting that union policies in general do not affect control of new processes; a good example of such an impact can be drawn from the transition from wood to iron shipbuilding. The shipwrights, who had formed the principal group of woodworking craftsmen initially refused to work with metal in private shipyards and so lost control of the principal hull construction operations in iron shipbuilding to the boilermakers; in government dockyards, by contrast, where the shipwrights were prepared to work with iron, they retained control over a much larger section of the production process.[2]

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[1] See above, p.xlv.

[2] See Pollard and Robertson, Shipbuilding, pp.153-55; Reid, Shipbuilding, pp.82-87, 150-51; K. McClelland, 'Shipbuilding Workers on Tyneside, 1850-1880' (unpublished paper, University of Birmingham, 1977), pp.11-12; J. Field, 'Labour Sectionalism and the Skilled Trades of Portsmouth Dockyard', Bulletin of the Society for the Study of Labour History 40 (1980).

An argument based on union policy, however, cannot account even for the variations in the terms for operating composing machines won by the TA and the LSC. While the TA Executive repeatedly conceded important points to the employers rather than risk a national lockout - ranging from the principles governing the relation between hand and machine work to shorter hours - the LSC Trade Committee, under the impetus of a militant and participatory membership, was prepared to face major strikes to impose tighter regulation of the machines. More significantly, the demands accepted by all organized printing employers in relation to union control over new machinery and the shorter working week were markedly more restrictive than those which precipitated the 1897-8 lockout; the ASE after all had requested only that certain machine tools be reserved for its members, or failing this, that whoever worked them receive the skilled men's rate.

In any case, such an argument begs the central question of how union policies are determined, ignoring both the role of the rank and file in policy formation and the wider contextual and organisational factors that explain why some union executives can impose a strategy from above while others cannot. As we have seen, executive policies considered insufficiently protective of craftsmen's interests in the face of mechanisation provoked rank and file revolts in each of the typographical unions, as well as in the ASE. Yet in the printing unions these revolts did not produce any substantial shift in union policy, while in the ASE the conciliatory strategy of working within the Terms of Settlement pursued by the Executive was overturned by opposition from the membership. Rank and file compositors eventually accepted the policies of their leaders because they did not prove subversive of craft regulation and because they themselves possessed no real alternative strategy. Engineers overturned their Executive's policies because these had failed

to prevent the deterioration of skilled craftsmen's position in the industry, and because the democratic structure of the union made it possible for them to do so. Thus it seems to have been the divergent abilities of the printing and engineering unions to enforce their demands rather than any intrinsic features of their policies or the attitudes of their members towards machinery which account for the different outcomes.

A second line of argument to be found in certain contemporary sources and in the historiography stresses the skills technically required for the optimal operation of composing machines. Thus it has been suggested by various authors that printing employers preferred to employ compositors on the new machines because their skills (other than familiarity with the location of types in their cases) remained essential for high output, and because the high capital costs involved required reliable operators rather than cheap labour.[3] It is certainly true that the operation of a linotype or monotype is by no means an unskilled activity since the machine operator must still be able to decipher his copy and hyphenate and justify the lines in accordance with the rules of spelling, punctuation, and printing convention. But while machine composition was a faster-paced and physically more demanding activity than hand work it was also on balance less skilled: the case jobbing hand, generally the most versatile but worst-paid of compositors, was often called upon to design the layout of a simple advertisement or broadsheet,

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[3] Elias, The Monotype, pp.10-11:

> ... There is no machine in the world which calls for greater care in the selection of the operator than the monotype. Therefore, whether for keyboard or for caster your men must be the best obtainable. A careless operator will run up your bill for correcting and reading, and upon urgent work will jeopardise your production, for it will be remembered, you will be relying on the work of the machines being ready on time.

See also G.E. Barnet, 'The Introduction of the Linotype', in his Chapters on Machinery and Labour (Cambridge, Mass., 1926), pp.26-29; and Child, Industrial Relations, p.160, quoted above, Ch.V, note 156.

while even the ordinary case hand setting straight copy had also to master the intricate rules governing the internal spacing between moveable types, a task eliminated by composing machines. The bulk of the skills still required of the composing machine operator - literacy and speed - were increasingly shared with the ordinary female typist, as printing employers were fond of observing, who after all underwent a not inconsiderable training period herself in most cases.

By the first decade of the 20th century, women were employed as monotype operators in Scotland and London, and voices were raised among printing employers clamoring for their use to be extended to the linotype as well. Even if mechanisation removed some of the need for printing employers to rely on cheap labour, all the evidence suggests that it was only under intense union pressure - in most cases an actual strike - that they were prepared to replace women with men as monotype operators. It seems clear that from a technical point of view the introduction of composing machines would have been compatible with a radically different division of labour, modelled perhaps on that prevailing in Edinburgh book houses before mechanisation, in which a small number of fully-trained compositors were retained for such tasks as making up, imposing, table work, and supervision, while the bulk of the actual typesetting was performed by women or non-apprenticed men after a relatively short training period.

Nor should it be thought that the introduction of automatic machine tools eliminated at a single stroke the need for skilled craftsmen in engineering, as for example, the introduction of machinery in the French glass bottle trade appears to have suddenly displaced artisans in the 1890s.[4]

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[4] Scott, Glassworkers of Carmaux.

Highly skilled engineers were still required (albeit in smaller numbers) to make and set tools, install and repair machines, and even to perform production work in most of the less specialized workshops that comprised the bulk of the British engineering industry. As in printing, therefore, new technology in engineering raised the question of where the line should be drawn between skilled and less skilled work rather than eliminating the demand for craftsmen to perform the former altogether.

If the intrinsic character of technology contributes little to an explanation of the divergent fates of compositors and engineers, market forces appear at first glance more powerful. The basic variations in the experience of these two trades with mechanization, it might be argued by neo-orthodox defenders of the deskilling thesis, can be explained by the contrast between the exposure of engineering to international competition and the sheltered position of printing in the domestic market particularly the newspaper sector. Insofar as technical advances in printing and communication free employers from their dependence on a single local market, the trends towards deskilling prevailing elsewhere in the economy should come to affect printing as well.[5]

Leaving aside the question of whether the changes in the division of labour in engineering can be accurately described as 'deskilling', such arguments carry undoubted force. Where demand was expanding rapidly and profit margins remained buoyant, as in newspaper printing, employers could afford to cede skilled workers higher wages and greater control over working

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[5] This is broadly the argument of Zimbalist, 'Technology and the Labour Process in Printing', in his Case Studies on the Labour Process, though the emphasis there is on the autonomous deskilling impact of technology rather than on shifts in market structure.

conditions than where the reverse was true, as in book and jobbing printing, and in much of engineering. More strongly, the intensification of international competition among engineering producers and shifts in demand for their products clearly constrained British employers' ability to tolerate the persistence of craft regulation in the industry to a far greater extent than was the case for their counterparts in printing. The impact of the world market would be felt most sharply between the wars: those British firms whose costs of production remained significantly above those of their American and German competitors, or equally importantly, who failed to follow the shifts in demand towards new products, tended to be driven out of international markets to a greater or lesser extent.

But before we embrace such determinist arguments, certain major qualifications are in order. The first concerns the slow, uneven, and often perverse impact of market forces on the division of labour in engineering. Between 1898 and 1914 buoyant demand for traditional export products allowed British firms in the older sectors to earn acceptable, if not spectacular, levels of profit without undertaking major investments in new plant and the transformation of the division of labour. At the same time, the low initial rates of return in the newer sectors consequent on the relatively weak market in Britain for mass produced goods, together with rigidities in the structure of existing enterprises, made such investments appear both risky and expensive to established manufacturers. Thus before the war, market forces left a wide space within which British engineering firms could select their investment strategies, and the extent of the actual changes in the division of labour in their workshops was determined by the clash between these strategic choices and the shopfloor resistance of skilled workers. In this period, the consequence of British engineering employers' incomplete transformation of the division

of labour was slower growth of output and productivity than that of their competitors rather than any immediate crisis of profitability. When intensified international competition assumed a more critical aspect after the war, it was by then too late for British firms in the older sectors to mobilize the resources for ambitious rationalisation programs, as the depressed climate of demand for heavy engineering products discouraged major new investments. Even so, many firms in certain older sectors such as marine engineering and machine tools survived the depression through wage cuts, short-time working, and selective layoffs, only to reemerge with the traditional division of labour relatively intact after the onset of rearmament.

Nor does printing present a less ambiguous case for the determinism of market forces. If book printers in Britain were relatively sheltered from foreign competition, they remained extremely vulnerable to domestic competition from provincial plants enjoying non-union wage rates and working conditions. Yet in this sector as in newspaper printing, compositors won control over mechanical typesetting, albeit on somewhat less advantageous terms. Even in the newspaper sector itself, there was no shortage of local competition, especially in London. It was the particular forms of competition in this sector and their impact on the newspaper proprietors' capacity for collective action rather than their insulation from market forces as such which underlay their repeated concessions to trade unions.

Finally, even where an industry is not subject to foreign competition, skilled workers may still fail effectively to enforce craft regulation. Thus in building, where the nature of the work ensured that it be performed locally as in printing, and where its varied character and the impact of seasonal and cyclical fluctuations served to sustain a demand for skilled

labour as in shipbuilding, craftsmen experienced increasing difficulty in the years before the First World War in regulating apprenticeship and working conditions, and often found themselves facing progressive casualisation, particularly in London.[6] Furthermore, a similar sheltered market position was compatible with different results in other countries: in America the building trades have always been one of the best organised sections of the labour movement, a bastion of the closed shop and the mainstay of the American Federation of Labour.[7] Thus in printing as in engineering, the central role of market forces in explaining the divergent outcomes of technical change is to be found less in an autonomous tendency to eliminate inefficient and unprofitable forms of the division of labour than in their impact on the balance of forces between skilled workers and their employers, to which we now turn.

As we have argued throughout this thesis, the divergent abilities of skilled engineers and compositors to control the impact of technical and organisational change on their position in the division of labour flowed in large measure from variations in the patterns and outcomes of industrial conflict. At issue here were both the outcomes of full-scale confrontations between unions and employers, and the less dramatic evolution of the balance of industrial power through local skirmishes and collective bargaining.

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[6] Burgess, Industrial Relations, Ch.2, especially pp.130-33; Price, Masters, Unions, and Men; N.B. Dearle, Problems of Unemployment in the London Building Trades (1908), especially Chs.3-4. For the role of market conditions in sustaining a demand for skilled labour in the industry, see Stinchcombe, 'Bureaucratic and Craft Administration of Production'.

[7] For more recent contrasts between the effectiveness of craft organisation in construction in the US and the UK, see L. Ulman, 'Collective Bargaining and Industrial Efficiency', in R. Caves (ed.), Britain's Economic Prospects (1968), p.345 and Piore, Birds of Passage, Ch.2.

The most striking contrast, of course, lay between the ASE's defeats in the national confrontations with the EEF in 1897-8 and 1922 and the relative success of the printing unions in the 1911 London 50 hours strike. The differences in the timing of the two disputes are as important as those in their outcomes as a guide to the varying balance of forces between skilled workers and their employers in the two industries. The engineering lockout developed at the onset of a period of major technical and organisational change, as employers sought to free themselves once and for all from the restrictions placed by craft regulation on their freedom of action in the workplace. In printing, by contrast, employers in most firms conceded initial control over the linotype to skilled compositors without a struggle; subsequent disputes with the typographical unions focused more on how the machines should be worked than on who should work them, though certain book firms did seek to employ women as monotype operators. Thus the 1911 Hours movement represented a forward movement launched by the compositors to consolidate the advantages won by their initial capture of mechanised typesetting, in contrast to the engineering lockouts in which the employers took the initiative.

Employers in engineering were not only more aggressive than their counterparts in printing, but also significantly more unified. The major firms in most sections of engineering strongly supported the EEF at the outset of the lockout, and the Federation's influence expanded considerably during the dispute itself. In the years following the lockout, the EEF developed into a powerful organisation enjoying remarkable hegemony over the industry, able to formulate policy effectively on a centralised basis, and from 1913 armed with an independent strike fund of considerable proportions. In printing, on the other hand, the newspaper proprietors, having granted the

48 hour week during the 1890s, withdrew from the London MPA in the face of a threatened city-wide printing strike in 1906. It was thus mainly the large London book and jobbing firms which mounted a determined resistance to the unions in 1911, and a large proportion even of these defected during the dispute itself.

These variations in employers' bargaining postures and capacities for collective action stemmed in the first instance from differences in market position and industrial structure. The sharpest contrast is that between engineering as a whole and newspaper printing. We have often had occasion to note the special vulnerability of newspaper proprietors to strike action rooted in the combination of a highly perishable product with a volatile readership and intense competition for advertising and circulation. A related contrast lay in the differential exposure of the two industries to foreign competition, with the newspaper and jobbing printers sheltered from external competition by the nature of their product and engineering firms feeling the threat from German and American manufacturers using a more advanced division of labour.

While their vulnerability to strikes inhibited newspaper publishers from uniting in opposition to their workers, the underlying buoyancy of their economic position also enabled them to concede the unions' demands more easily than could their counterparts in engineering. Given their rapidly expanding market and the productive power of the linotype, newspaper owners could afford to concede control over the machines to union craftsmen, and even to pay operators substantial premiums, without cutting too far into rising profits. In engineering, by contrast, slowly rising demand in the older sectors, the limited market in Britain for mass produced goods, and employers' anxieties about foreign competition all deterred them from offering

financial premiums to win craftsmen's consent to the new techniques. On the contrary, they believed the use of less skilled and lower paid labour essential to the profitable operation of the new machines, as well as new systems of incentive payment and supervision antithetical to craft regulation. Thus conflicts over mechanization proved more bitter and less amenable to compromise in engineering than in printing.

The importance of these variations in market structure is underlined by the contrast we have repeatedly drawn between the daily newspapers and the rest of the printing industry. As we have seen, it was the large book and jobbing firms, able to stockpile their more standardised and durable product but vulnerable to competition from provincial plants enjoying non-union wage rates and work rules, which formed the backbone of employers' militancy throughout Britain. With demand for their products rising more slowly than that for newspapers, and profits squeezed by rising capital costs and intensified competition, it is hardly surprising that these firms initially (though unsuccessfully) experimented with female operators on the monotype - which though better-suited to book production offered lower cost-reductions than the linotype - and in general maintained a harder line on wages, hours and working conditions than did the newspaper proprietors. In a parallel vein, the lower level of local competition faced by provincial newspapers compared to their London counterparts enabled their proprietors to collaborate more successfully both with one another and with other master printers, despite their similar vulnerability to time pressures. But though their greater militancy and solidarity won them more advantageous terms for the operation of composing machines, these were never put to the test of strike action before 1914.

If variations in market structure conditioned the relative cohesion and aggressiveness displayed by printing and engineering employers, these do not provide a complete explanation. While market structures defined the lines of force which facilitated certain alliances and discouraged others, the actual coalitions forged by employers depended in large measure on those combinations of historical conjuncture, prior experience of industrial conflict, and strategic choices which made them appear necessary and desirable to the participants.

Thus structural forces can be discerned which acted to obstruct as well as encourage the formation of a cohesive national employers' association in engineering. The heterogeneity of the industry, which posed similar problems of coordination for the unions, made it difficult to convince firms in diverse sectors that their interests would be served by a single national organisation; it was on this rock that the ITEA ran aground in the 1870s, as the marine firms preferred to hold aloof from an organisation which they feared would be dominated by the inland producers. Even after 1898, the railway companies refused to join the EEF despite the fact that they figured among the country's largest engineering employers. As we saw in Chapter IV, it was the convergence of a number of factors in the 1890s which overcame the sectional barriers among engineering employers. Beginning in the late 1880s, a period of intensified normal conflict with the ASE drove engineering employers, particularly in the marine centres, to experiment with wider forms of cooperation. The combination of an upsurge of foreign competition with new opportunities for mechanisation in the mid-90s helped to convince leading firms in a number of sectors that a major confrontation with the unions over craft regulation had become both necessary and potentially profitable. Even so, it required the spectre of

an immediate sharp increase in labour costs in the shape of the demand for the 48 hour week to win over most regional employers' associations, and many smaller firms less able to sustain the costs of a shutdown were only brought into line through a rigorous trade boycott.

Similar factors contributed to the pattern of employer organisation in printing. Despite the latent structural possibilities for collaboration among the larger book and jobbing firms, it was the growing strength and aggressiveness of the printing unions, manifested in demands for increases in wages and reductions in hours, which led to the reestablishment of the London MPA in 1890 and the formation of the FMP in 1901. Similarly, the emergence of the first efforts at regional collective bargaining by provincial master printers were the product of the conflicts over the introduction of the linotype, while it was the convergence of a set of related but separate disputes which gave rise to the grand coalition of provincial newspaper, book, and jobbing firms in 1911. Even in the London newspaper press, the proprietors' structural weakness was not the sole cause of their initial concessions to the compositors over the linotype; their previous experience with experiments at mechanical composition had made them doubt that the new machines would enable them to reduce their dependence on highly skilled operators.

In engineering, by contrast, the prior success of mechanisation disposed employers if anything to overestimate the immediate impact of the new machine tools on the industry's skill requirements, and so made them more prepared to risk a full-scale confrontation with the unions. Moreover, had the LSC remained completely intransigent on the questions of tuition, piece rates, and restricton of output, rendering the linotypes completely unprofitable,

it is conceivable that the London newspaper proprietors might have found themselves forced to overcome their historic disunity. Had the breakthrough to mechanical composition first affected the large book and jobbing firms rather than the most vulnerable yet most profitable sector of the industry, it seems unlikely that the compositors would so easily have secured control of the machines. Given the actual sequence of historical developments, on the other hand, the concessions made by the newspaper proprietors over the linotype in turn weakened the bargaining position of the book and jobbing firms over the monotype.

Whereas engineering employers were more united than those in printing, the reverse was true of the workers in the two industries. The ASE did not receive the support in 1897 of several of the most important unions of skilled workers in the industry, the Boilermakers, the Patternmakers, the Plumbers, and the various unions of blacksmiths. At the same time, the engineers had earned the active hostility of the less skilled, who remained largely unorganised. The 50 hour movement in London, by contrast, was strongly supported not only by the various unions of printing craftsmen, but also by the new unions of the less skilled, whose cooperation was by all accounts crucial to the successful prosecution of the strike. Similarly, the ability of the Edinburgh compositors in 1910 to impose restrictions on the use of low paid female labour on local master printers depended on a similar Federated movement, in which the women themselves cooperated to secure higher pay. The centrality of inter-union collaboration in these victories by printing workers is underlined by the defeat in 1912 of the Edinburgh compositors' movement for the abolition of piecework which was not supported by the local PKTF, and by the failure of the TA's national strike against wage reductions in 1923.

These variations in the solidarity of engineering and printing workers stemmed in large measure from the sharply different social relations prevailing between sections of the labour force in the two industries, which were in turn closely related to structural differences in the divisions of labour prevailing before mechanisation. Paradoxically, the more amicable relations between craftsmen and the less skilled in printing resulted from the compositors' more successful policy of exclusiveness. Because there had been no significant changes in typesetting methods since the days of Caxton and Gutenberg, there were no non-craftsmen with a foothold in the organisation of production who could be upgraded by the introduction of composing machines. The only labourers passing through the composing room were unambiguously relegated to carrying type-filled formes and to similar menial tasks. At the same time, there was little overlap between compositors' work and that claimed by other printing trades, and so limited scope for demarcation disputes with other groups of craftsmen.

In engineering, on the other hand, a previous wave of mechanisation in the 1830s and 40s had called into being a host of handymen and machinemen working simpler machines such as planers or drills who could now expect to move onto semi-automatic lathes or milling machines at higher wages unless restrained by the ASE. At the same time, the heterogeneous structure of the engineering industry, with its network of overlapping product and labour markets, and the greater complexity of its division of labour, meant that engineering craftsmen faced fierce competition for control over tasks from members of other skilled trades, particularly in the shipyards with their exceptionally sharp exposure to the business cycle. Skilled engineers' demarcation lines were therefore far more tangled and ambiguous than those of the compositors, and therefore more vulnerable to encroachments not only

from employers, but also from other groups of workers 'beside' and 'below' them in the occupational hierarchy.

These conflicts of interest made solidarity between skilled engineers and other groups of workers difficult to achieve, even over a demand beneficial to all such as the eight hour day. As we have seen, the antagonism between craftsmen and the less skilled in engineering, amply attested to by contemporary observers and often reinforced by the formers' social aloofness, reinforced the disposition of handymen and labourers, whether organised or not, to blackleg during strikes by ASE members. Similarly, the defection of the Boilermakers, Patternmakers, and other skilled trades from the movement for the 48 hour week in 1897 was in large measure the result of the bitterness created by a series of intense demarcation disputes during the preceding decade.

In printing, by contrast, the insulation of the compositors from such conflicts with other groups of workers made warm relations possible not only among the various crafts, but also between the compositors and the new unions of the less skilled. The main threat to compositors' control of the labour market came from unorganised and partly trained men and women, whose exclusion all groups of unionised workers were prepared to support. The new unions took the lead in the formation of a cohesive and dynamic Printing Trades Federation, first in London and then nationally, and were the first to propose joint action within its framework to secure the eight hour day. In this context, the demand for a shorter working week appeared as an egalitarian goal advantageous to all grades, even though this struggle aided the compositors to consolidate their privileged status.

The importance of the structure of the division of labour for the pattern of relations between craftsmen and the less skilled is confirmed by the

endemic conflicts between printing machine managers and specialised labourers in the machine room. The development of larger and more complex presses during the second half of the 19th century had created an intricate division of labour in the machine room which made it possible for an unskilled press hand to ascend a ladder of progressively more demanding tasks until he could challenge an apprenticed craftsman for the management of the largest presses. As a result, not only did the machine managers respond more cooly to the organisation of the lower grades of press hands than did the compositors, but by the eve of the First World War conflicts over the promotion of underhands to positions claimed by craftsmen had become so acute that NATSOPA had transformed itself into a union aiming to organise all grades of workers, while the threatened craft unions had formed a defensive alliance against this threat of "usurpation".

But as in the case of the employers, the variations in the capacities of engineering and printing unions for concerted action were not determined solely by structural factors. As we have seen, the construction of durable and effective Printing Trades Federations at the local national level was the product of a lengthy and eminently political process of bargaining among the various unions in the industry. From the mid-80s to the late 90s, a series of attempts to form national and metropolitan Federations failed because of disagreements over the basis of representation on its executive, the reluctance of more powerful unions to surrender any of their autonomy to a larger body, fears that federation would lead to undesirable entanglement in other trades' disputes, and historic antagonisms between the various regional typographical unions whose initial experiment at amalgamation had collapsed in 1848. Despite the sympathy of the LSC for the organising efforts of the new unions of the less skilled compositors were initially reluctant to link their fortunes with them in a

metropolitan Federation proposed by the Warehousemen and Cutters in 1894; it was only the example of the engineering lockout and the worsening climate of relations with printing employers over composing machines that convinced them to affiliate in 1897.

Similarly, the enthusiastic support of the new unions for federated action in pursuit of the eight hour day flowed not only from the lack of antagonism between compositors and the less skilled in the workplace, but also from the supportive role played by individual socialist compositors and the LSC as a whole in their formation and subsequent growth, from the socialist ideology of their leaders, and from their organisational dependence on concessions from organised employers to achieve gains which they were too weak to secure at plant level. These relationships were further solidified by the experience of victories won through joint struggle during the decade prior to 1911: the London PKTF played a central role in the recognition of NSOPA by the MPA in 1900, and in the LSC's successes in the disputes at Straker's and Hampton's in 1905-6.

Conversely, the defection of the TA from the Federated front in 1911 was a consequence both of its Executive's cautious and autocratic political style and of the heritage of bitterness and distrust left by the jurisdictional disputes with the LSC and the breakdown of amalgamation negotiations in 1907. Compositors were fortunate that the local solidarity which they forged with other printing trades proved a more important determinant of the outcomes of industrial conflict in this period than the antagonisms between their own regional unions which they failed to overcome.

In engineering, too, the structural sources of conflict with other unions were exacerbated by the ASE's political style. If the ASE leaders' policies

towards new machinery contributed little in themselves to the declining hold of craft regulation over the trade, their aggressive and imperialistic conduct towards other unions and groups of workers reinforced the engineers' isolation and vulnerability to an employers' offensive. The ASE became notorious in the 80s and 90s for its efforts to shore up its declining organisational position by attacking the smaller sectional societies and appropriating the work claimed by their members; even when their strikes were wholly directed against employers, they were rarely prepared to consult other trades whose members were often laid off as a result of the ASE's unilateral actions. Such attitudes led the union to hold aloof from all proposed forms of inter-union cooperation before 1897, whether at a regional or a national level, particularly those organised by its arch-rival the Boilermakers, such as the Federation of Engineering and Shipbuilding Trades. In this context, it was hardly surprising that the other unions left the ASE to face the employers' front alone in 1897, despite their own commitment to the goal of the 48 hour week.

The failure of the various efforts between 1890 and 1914 to forge an alliance between craftsmen and the less skilled within the framework of the ASE was likewise linked to the internal politics of the union as well as to the structural antagonism between handymen and apprenticed engineers in the division of labour. In 1892, 1901, and again in 1912, ASE Delegate Meetings under prompting from the Executive voted to create new sections for less skilled engineering workers in hopes of broadening the union's hold over the industry. Each time, however, these initiatives were frustrated by the fact that responsibility for recruiting workers into these sections remained in the hands of skilled workers in the District Committees who were largely opposed to any dilution of the principles of craft regulation.

More broadly, the notion of opening the ranks of the union to the less skilled tended to become discredited in the eyes of militant ASE members and local officials because of its association with George Barnes' broader strategy of working within the Terms of Settlement and converting the union's goals from the defence of craft regulation to the pursuit of economic demands through national collective bargaining. This strategy foundered in turn on the continuing commitment of rank and file engineers to craft regulation, on its failure to secure tangible gains in the face of the employers' simultaneous aggressiveness on wages and work organisation, and on the democratic structure of the union which ultimately prevented the Executive from imposing policies which were opposed by the majority of its members.

The alternative conception of a revolutionary alliance between craftsmen and the less skilled associated with Tom Mann and later with the syndicalist militants of the amalgamation movement held little appeal for skilled engineers, not least because it was unable to propose any concrete measures to overcome the practical conflict of interests between the two groups within the existing division of labour. It was only during the First World War, when it seemed conceivable at times that political upheaval might give rise to an entirely new division of labour, that such ideas acquired a wider following among engineering craftsmen. Even then, the local alliances forged between skilled and semi-smilled workers tended to collapse as soon as the issues that had brought them together gave way to ones which divided them; with the stabilisation of the political situation after the war and the collapse of the post-war boom, such conceptions once again gave way to the older sectional and exclusive attitudes among the majority of skilled engineers.

The project undertaken in this thesis was inspired by a general dissatisfaction both with the dominant theoretical approaches to the division of labour and with the many historical case studies which described the experience of individual trades against a backdrop of unexamined theoretical assumptions. By embarking on a detailed historical comparison between two groups of skilled craftsmen whose experiences with technical and organisational change ran in certain respects against the grain of these theoretical assumptions, and by attempting a systematic explanation of the divergences between them, it was hoped to provide an account of the transformation of the division of labour which would be more convincing from both a theoretical and an empirical point of view.

Our account has highlighted the role of conflict between skilled workers and their employers in determining the consequences of technical and organisational change for the position of craftsmen in the division of labour within the limits set by market forces. The outcomes of industrial conflict have in turn been traced back to variations in the balance of forces between skilled workers and employers, emphasizing the impact of market structure and the preexisting division of labour on the bargaining power of each group and their relative capacities for collective action. At the same time, it has been argued that structural factors conditioned but did not determine the actual pattern of alliances formed by workers and employers, which depended in large measure on an essentially political process influenced by specific historical conjunctures, past experiences of conflict and cooperation, and the strategic choices of each group of actors.

A comparison of this type provides a solid basis neither for the construction of a new theory of the division of labour nor for detailed generalisations about the pattern of its development in other empirical

cases. A number of wider methodological implications for the analysis of the division of labour can nonetheless be drawn from the present study. The account presented in this thesis strongly supports the view that the development of the division of labour cannot be deduced from a unilinear model of capitalist development but is rather the outcome of a complex process of struggle and negotiation which must always be the subject of empirical investigation. At the same time, such empirical studies cannot proceed without certain theoretical guidelines. While the specific outcomes and the relative importance of causal factors will differ in each case, it seems reasonable to argue that the balance of forces between workers and employers will always be of central importance for the transformation of the division of labour. In similar fashion, the alliances and cleavages within the ranks of each group crucial to the outcome of industrial conflict can only be understood as the product of a dialectic between such structural factors as market position and the shape of the existing division of labour, and the creative responses of each group of actors to the dangers and opportunities presented by any historical situation.

# APPENDIX:

## TABLES

Table 1

Employment in the Engineering Industry, 1851-1911

A. Metal manufacture, machines, implements, vehicles, precious metals, etc. (Great Britain, 1911 census categories)

| Year | Number (000s) |
|---|---|
| 1851 | 536 |
| 1861 | 747 |
| 1871 | 869 |
| 1881 | 977 |
| 1891 | 1151 |
| 1901 | 1485 |
| 1911 | 1795 |

Source: Abstract of British Labour Statistics, 1886-1968 (1968), Table 102

B. Estimated Number of Operatives (Male and Female) in the Manufacture of Machinery and Shipbuilding, 1881-1911 (Great Britain)

| Year | Machinery (000s) | Shipbuilding (000s) |
|---|---|---|
| 1881 | 457.3 | 72.5 |
| 1891 | 533.7 | 94.3 |
| 1901 | 695.7 | 122.7 |
| 1911 | 733.1 | 158.0 |

Source: E.H. Phelps Brown and M. Browne, A Century of Pay (1968), p.416

C. Employment in Selected Sectors of Engineering and Shipbuilding, 1907 (Great Britain)

| Sector | Number (000s) |
|---|---|
| Engineering (mechanical and electrical) | 461.7 |
| Shipbuilding and Marine Engineering (private firms) | 188.3 |
| Cycles and Motor Vehicles | 54.3 |
| Railway Carriages and Wagons | 28.0 |
| Railway Firms (construction, repair, and maintenance of rolling stock and plant) | 241.8 |
| Royal and Naval Ordinance Factories | 15.6 |
| Government Shipyards | 25.6 |

Source: Analysis of 1907 Census of Production in A.E. Musson, The Growth of British Industry (1978), p.181

Table 2

Male Employment in Printing, 1851-1911

A. Printing, Paper, Books, and Stationery (Great Britain, 1911 Census categories)

| Year | Number |
|---|---|
| 1851 | 62 |
| 1861 | 79 |
| 1871 | 94 |
| 1881 | 134 |
| 1891 | 178 |
| 1901 | 212 |
| 1911 | 253 |

Source: Abstract of British Labour Statistics, Table 102

B. Growth of Male Employment in Printing by Sector, 1851-1891 (England and Wales)

| Sector | 1851 | 1871 | 1891 | % increase 1851-91 |
|---|---|---|---|---|
| Bookbinding | 5.5 | 7.9 | 11.5 | 110 |
| Printing | 23.6 | 44.1 | 82.0 | 250 |
| Lithography | 2.0 | 3.8 | 8.6 | 330 |
| Papermaking | 6.1 | 10.1 | 12.0 | 100 |
| Total | 37.2 | 65.9 | 114.1 | 207 |

Source: Censuses of Population as analyzed in J. Child, Industrial Relations in the British Printing Industry (1967), p.107

Table 3

Sectoral Structure of the Engineering and Printing Industries, 1907

A. Gross Output of Selected Sectors of the Engineering Industry

| Sector | | | Value (£m.) |
|---|---|---|---|
| Textile Machinery | | | 13.0 |
| Railway Locomotives: | Private Builders | 4.5 | 12.4 |
| | Railway Companies | 7.9 | |
| Railway Carriages and Wagons: | Private Builders | 8.2 | 15.8 |
| | Railway Companies | 7.6 | |
| Marine Engineering | | | 9.8 |
| Steam Engines (excluding locomotives and agricultural steam engines) | | | 6.9 |
| Cycles, Motor Cycles, and Parts | | | 5.7 |
| Motor Vehicles and Parts | | | 5.2 |
| Boilers | | | 4.1 |
| Machine Tools | | | 2.9 |
| Agricultural Machinery and Steam Engines | | | 2.4 |
| Internal Combustion Engines (except motor vehicles) | | | 2.1 |
| Hydraulic Machinery | | | 1.4 |
| Mining Machinery | | | 1.3 |
| Other Machinery | | | 11.7 |
| Electrical Engineering | | | 14.1 |

Source: Analyses of 1907 Census of Production in Saul, 'Engineering', p.192; Musson, British Industry, p.183; T.R. Gourvish, 'Mechanical Engineering' in N. Buxton and D.H. Aldcroft (eds.), British Industry between the Wars, p.133

B. Gross Output of Selected Sectors of the Printing Industry

| Sector | Value (£000s) |
|---|---|
| Jobbing and General Printing | 11 |
| Newspapers | 10 |
| Magazines | 2 |
| Lithographic and Photographic Process | 3 |
| Books | 2 |

Source: Analysis of 1907 Census of Production in J.C. Smail, Training and Employment in the Printing Trades (1917), p.9

Table 4

Piecework in Engineering, 1861-1906

A. National Figures

| Year | % on piecework |
|---|---|
| 1861 (a) | 10.5 |
| 1876 (a) | 17.0 (England and Wales)<br>3.0 (Scotland) |
| 1886 (b) | 7.5 |
| 1891 (a) | 16.8 |
| 1906 (c) | 27.5 (all engineering workers)<br>33.0 (fitters and turners) |

(a) ASE members only

(b) 1886 Wages Census*

(c) 1906 Wages Census**

* Sample of 54,141 engineering workers, including 7,547 fitters and turners;

**Sample of 368,552 engineering workers, including 61,238 fitters and turners.

Source: 1861: ASE, Returns on Trade Customs, etc. in M. and J.B. Jefferys, 'The Wages, Hours, and Trade Customs of the Skilled Engineer in 1861', Economic History Review, 1st ser., 17 (1947);
1876: ASE General Information Schedule, cited in K. Burgess, The Origins of British Industrial Relations (1975), p.26;
1886: Wages Census, PP. 1893-4, LXXXIII, pt.II, cited by Jefferys and Jefferys, 'Skilled Engineer';
1891: submission of the ASE to the Royal Commission on Labour, Group A, Minutes of Evidence, PP. 1893-4, XXII, App.XLVI;
1906: Board of Trade, Report of an Enquiry into the Hours and Earnings of Workpeople in the U.K., PP.1911, LXXXVIII, pt. I

B. Increase of Piecework in Selected Districts, 1861-91

| District | % 1861 | % 1891 |
|---|---|---|
| Lancashire | 16 | 26 |
| Yorkshire | 11 | 17 |
| Southwest | 16 | 22 |
| East Midlands | 14 | 25 |
| West Midlands | 14 | 44 |
| Eastern Counties | 19 | 57 |

Source: Jefferys and Jefferys, 'Skilled Engineer', p.43

Table 5

Trade Union Standard Rates and Average Time Earnings of Fitters and Turners, 1886

| District | Standard Rate | Average Earnings | % whose earnings ranged more than 10% above or below average earnings |
|---|---|---|---|
| Northumberland, Durham, North Yorkshire | 26/6 (Hull), 30 | 29/6 | 24 |
| | (Newcastle), 33 | 29/0 | 30 |
| | (Sunderland) | | |
| Manchester | 34 | 31/6 | 12 |
| | | 31/11 | 14 |
| South Lancashire (except Manchester) | (Oldham) 33 | 29/0 | 25 |
| | (Blackburn) 32 | 29/5 | 18 |
| West Yorkshire (except Sheffield) | (Leeds) 36 | 26/11 | 22 |
| | | 27/2 | 18 |
| Cumberland, Westmoreland, North Lancashire | (Barrow) 31 | 29/4 | 17 |
| | | 29/3 | 7 |
| London | 38 | 38/0 | 5 |
| | | 37/6 | 9 |
| Notts., Derbys., Lincoln | (Nottingham) 34 | 26/1 | 28 |
| | | 27/8 | 32 |
| Cheshire, Staffs., Warks., Worcesters. | (Birmingham) 30 | 30/1 | 18 |
| | | 30/5 | 30 |
| Bristol, Monmouths., South Wales | (Bristol) 32 | 26/4 | 28 |
| | | 28/3 | 32 |
| Glasgow | (1889) 33/9 | 28/6 | 18 |
| | | 27/5 | 12 |
| Belfast | 26/6 | 27/1 | 27 |
| | | 27/1 | 25 |

Total Number in Sample: 2601 Turners, 4946 Fitters

Note: In columns three and four, the figures for turners are given above those for fitters.

Sources: A.H. Bowley and G. Wood, 'The Statistics of Wages in the U.K. during the last Hundred Years, pt.X, Engineering and Shipbuilding: Trade Union Standard Rates', Journal of the Royal Statistical Society, 68(1), 1905; General Report on the Wages of the Manual Labour Classes in the U.K., 1866 and 1891 (1886 Wages Census), (C.6889), PP.1893-4, LXXIII

Table 6

Casual Labour in the Typographical Association 1892: Branches with Over 200 Members

| Branch | No. of Members | No. of Casuals | % of Casuals |
|---|---|---|---|
| Belfast | 468 | 118 | 25.6 |
| Birmingham | 645 | 86 | 13.3 |
| Bristol | 305 | 70 | 22.9 |
| Cardiff | 330 | 23 | 6.9 |
| Derby | 220 | 27 | 12.3 |
| Hull | 260 | 54 | 20.7 |
| Liverpool | 830 | 149 | 18.0 |
| Manchester | 1611 | 499 | 31.0 |
| Newcastle | 489 | 79 | 16.1 |
| Nottingham | 266 | 56 | 21.0 |
| Oxford | 260 | 10 | 3.8 |
| Sheffield | 365 | 54 | 14.7 |
| Total | 6049 | 1225 | 20.3 |

Source: Report for Half Year to 25/6/92, Typographical Circular, Jan. 1893, p.4

Table 7

Apprenticeship in Printing, 1850-1890

A. Regulation of Apprentices in the United Kingdom 1850

| Region | Journeymen | Apprentices |
|---|---|---|
| London | 3000 | 1500 |
| England and Wales | 2500 (1937) | 2000 (1443) |
| Scotland | 1500 (954) | 1200 (550) |
| Ireland | 1500 (548) | 1300 (475) |
| Total | 8500 (6439) | 6000 (3968) |

Figures in parentheses are actual trade union figures

Source: E. Edwards, 'The Disease and the Remedy', LSC Prize Essay 1850, in E. Howe (ed.), The London Compositor (1947), p.307

B. Regulation of Apprenticeship in London 1837-1890

| Year | Houses | Journeymen | Apprentices | Turnovers | Ratio |
|---|---|---|---|---|---|
| 1837 | 94 | 1110 | 425 | - | 2:5 |
| 1840 | 95 | 1343 | 534 | - | 2:5 |
| 1847 | 124 | 1901 | 495 | 140 | 2:6 |
| 1867 | 99 | 2344 | 547 | 103 | 2:7½ |
| 1877 | 180 | 3601 | 961 | 112 | 2:6⅔ |
| 1880 | 169 | 3901 | 874 | 94 | 1:4 |
| 1890 | 306 | 6679 | 1412 | 83 | 1:4½ |

Source: Report of LSC Special Committee on the Apprenticeship Question, 1887, in Howe, London Compositor, Doc.XCIII; LSC Annual Report 1890

Cont.-

Table 7 Cont.-

C. Apprentices, Boys, Women, and Journeymen: Selected Provincial Printing Centres 1885

| Town | Journeymen | Apprentices and Boys | Women | Apprentice Ratio |
|---|---|---|---|---|
| TA: | | | | |
| Aylesbury | 100 | 25 girls, 100 boys | 15 | 1:3 |
| Bristol | 200 | 57 | - | |
| Burnley | 30 | 28 | - | |
| Cardiff | 200 | 100 | - | max. 3 per office |
| Derby | 200 | 30 girls, 30 boys | 60 | max. 3 per office * |
| Gloucester | 55 | 50 | 1 | max. 3 per office * |
| Guildford | 90 | | | |
| Halifax | 72 | | - | union offices: 1:3-4<br>all offices: 1:1 |
| Huddersfield | | | | |
| Lancaster | 25 | 2 girls, 30 boys | - | 3 in all union offices |
| Liverpool | 1260 | 120 boys, 160 apprentices | 60 | max. 3 per office |
| Middlesborough | 50 | 40 | - | 1:2 |
| Newry | 100 | 80 | - | 3 per office |
| Penrith | 12 | 16 | - | |
| Preston | 110 | 90 | - | 2-3 per office |
| Rugby | 35 | 8 | - | 3 per office |
| Scarborough | 50 | 18 | - | 3 per office |
| Sligo | 16 | 11 | - | 1:6 up to 3 per office |
| Southport | 71 | 17 | - | 3 per office |
| Stafford | 75 | 75 | - | |
| Sunderland | 70 | 56 | - | 1:3 * |
| Wigan | 52 | 15 | 7 | |
| York | 120 | 80 | - | 3 per office * |
| STA: | | | | |
| Ardrossan | 11 | 8 boys, 3 girls | 2 | 3:9 |
| Ayr | 30 | 28 | - | 3:9 |
| Dundee | 150 | 100 | - | 3 per office * |
| Edinburgh | 1000 | | 300 | 1:3 * |
| Glasgow | 1401 | 1000 | - | 1:3 max. 4 per office |
| Hamilton | 18 | 10 | - | 1:3 |
| Independent Local Societies: | | | | |
| Dublin | 600 | 100 girls, 30 boys | - | officially 1:9; in practice 1:3 |
| Leeds | 1000 | | | sliding scale: 2:4-7:31-40; evaded in some cases |

* Ratio not effectively enforced

Note: These figures include pressmen and other printing trades as well as compositors, though the latter are overwhelmingly predominant.

Source: Royal Commission on the Depression of Trade and Industry, Second Report, PP.1886, XXII, Appendix II

Table 8

Outcome of 1911 London Printing Strike

A. Reunionisation of London Printing Houses 1911-1919

| | |
|---|---|
| Firms on LSC Fair List 11/10 not conceding 50 hours by April 1911 | 144 |
| Concessions by November 1911 | 25 |
| Concessions between November 1911 and January 1915 | 16 |
| Concessions between January 1915 and March 1919 | 13 |
| Total of concessions by March 1919 | 55 |
| Non-conceding firms absent from Post Office Directory 1919 | 37 |
| Remaining firms still resisting in 1919 | 52 |
| Percentage of original pool resisting in 1919 | 36 |

B. Additions to LSC Fair List 1912-19

| | |
|---|---|
| 1912 | na |
| 1913 | 52 |
| 1914 | na |
| 1915 | na |
| 1916 | na |
| 1917 | 51 |
| 1918 | 59 |
| 1919 | 86 |

C. Date of Concession of Major Firms

April-November 1911:
Clowes
Wyman and Sons
Harrisons
George Newnes
Hazell, Watson, and Viney
Eyre and Spottiswoodes
Ballantynes

1915-1918:
Harmsworth
Alabaster Passmore and Sons*
Waterlow Bros. and Layton
Waterlow and Sons
Spottiswoode and Co.
Sir Joseph Causton and Sons

* not on LSC Fair List 11/10

Sources: LSC Fair Lists, 1910-15; LSC Annual Reports, 1910-20; Kelley's Post Office Directory of Stationers, Booksellers and Papermakers, 1919

Table 9

Promotion of Handymen onto Skilled Men's Work 1897-8

| I. Working of Machines | Marine Dist. (46 firms) | Marine Dist. (23 firms) | Inland Dist. (13 firms) | Inland Dist. (39 firms) |
|---|---|---|---|---|
| 1. unskilled men started during dispute | 263 | 135 | 104 | 198 |
| 2. number still employed 3/98 | 197 | 104 | 80 | 139 |
| 3. unskilled men started since close of dispute | 171 | 57 | 60 | 70 |
| Total Retained (2 & 3) | 368 | 161 | 140 | 209 |
| II. Other Skilled Operations | | | | |
| 1. unskilled men started during dispute | 49 | 3 | 102 | 26 |
| 2. number still employed 3/98 | 36 | 3 | 98 | 14 |
| 3. unskilled men started since close of dispute | 13 | 5 | 11 | 7 |
| Total Retained (2 & 3) | 49 | 8 | 109 | 21 |
| Total Unskilled Men Promoted (I & II) | 417 | 169 | 249 | 230 |
| Average per firm | 9.07 | 7.68 | 19.15 | 5.80 |

Source: Engineering Employers' Federation Archives, Emergency Reports 1/6/1898; 13/9/1898

Table 10

Conferences Between EEF and ASE on Machine Manning 1898-1914

A. Results of Conferences on a Scale from 1-6 (See Below for Key)

| Period | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1898-1901 | 5 | 5 | - | 1 | - | - |
| 1902-1907 | - | 6 | 2 | - | - | - |
| 1908-1910 | - | - | 3 | - | - | - |
| 1911-1914 | - | 3 | 5 | 10 | 3 | 2 |

Key: 1. Appeal dropped by union before central conference;
2. Appeal dropped at CC, referred back to local conference, or CC adjourned;
3. Failure to agree, or no recommendation;
4. Conciliatory formula proposed by employers - e.g. employers should avoid displacement of old hands in introducing new machine tools;
5. Union success;
6. Union success without CC.

B. Geographical Distribution of Cases by Area 1898-1914

| Region | 1898-1901 | 1902-1907 | 1908-1910 | 1911-1914 | Premium Bonus 1902-1907 |
|---|---|---|---|---|---|
| Lancs & Yorks | 5(7) | 3 | 2 | 17 | 3(4) |
| Northeast Coast & Barrow | (3) | 3 | - | 2(4) | 6(7) |
| Northwest, Scotland & Belfast | - | - | 1 | 2 | - |
| W. Midlands | - | - | 1 | 2 | - |
| London | 1 | 1 | - | 1 | 1 |
| Other | - | 1 | - | 2 | 3 |

Figures in parentheses include cases in EEF archives which did not reach a central conference.

Source: EEF Archives, Series M(3) - M(9); Series P(2)

Table 11

Strikes over Machine Manning in Engineering and their Outcomes 1898-1914

| Year | District | Firm | Outcome |
|---|---|---|---|
| 1898 | Manchester | Johnson & Co. | Defeat-strikers replaced |
| 1898 | Halifax | J. Sagar & Co. | Defeat-return on old terms |
| 1900 | Oldham | Wm. Bodden & Sons | Defeat-return on old terms |
| 1901 | North East | Richardson, Westgarth | Defeat-return on old terms |
| 1904 | Paisley | M & O Car Co. | Defeat-strikers replaced |
| 1904 | Hull | Amos and Smith | Defeat-return on old terms |
| 1906 | Manchester | Muirs | Defeat-return on old terms |
| 1907 | Burnley | Pembertons | Defeat-return on old terms |
| 1907 | Burnley | Butterworth & Dickinson | Defeat-return on old terms |
| 1908 | Belfast | Davidson & Co. | Defeat-strikers replaced |
| 1911 | Bradford | Parkinson & Co. | Defeat-strikers replaced |
| 1912 | E. Scotland | Brown Bros. | Defeat-men return on old terms |
| 1912 | Burnley | ? | Compromise recommendation |
| 1912 | Bradford | ? | Compromise recommendation |
| *1912 | Blackburn | H. Livesey & Co. | Victory |
| *1912 | North East | John Lynn & Co. | Victory |
| 1913 | Bolton | Vulcan Motor & Engine Co. | Compromise |
| 1913 | Coventry | Coventry Ordnance Wks. | Compromise |
| 1913 | London | ? | Defeat-return on old terms |
| *1913 | Bolton | Dobson and Barlow | Victory |
| 1913 | Birmingham | Tangyes | Victory |

* strike was 'constitutional': i.e. occurred after EEF disputes procedure had been exhausted.

Note: where information given was not sufficient to determine the outcome of strikes, these were omitted.

Sources: EEF Archives, Minutes, Emergency Committee Reports, Case Files, Series M; ASE ODD Reports in ASE MJ&R 1898-1904, 1911-14

Table 12

International Competition in Mechanical Engineering Exports, 1913 (£m.)

| Product | UK | USA | Germany |
|---|---|---|---|
| Agricultural Machinery | 3.0 | 6.7 | 2.5 |
| Boilers | 1.8 | | 0.8 |
| Prime Movers | 5.2 | 1.9 | 4.7 |
| Machine Tools | 1.0 | 2.9 | 4.0 |
| Locomotives (rail and road) | 3.4 | 1.2 | 3.9 |
| Sewing Machines | 2.4 | 2.4 | 2.8 |
| Textile Machinery | 8.3 | 0.3 | 2.8 |
| Miscellaneous | 9.7 | 14.2 | 15.7 |
| | 34.8 | 29.6 | 37.2 |

Note: Table excludes cars, cycles, firearms, and railway carriages and wagons. Miscellaneous section largely consists of cranes, pumps, mining, hydraulic, sugar grain milling, paper making, and woodworking machinery.

Source: Balfour Committee on Industry and Trade, Survey of the Metal Industries, (1928), pp.138-206, analysed by S.B. Saul, 'Engineering', in D.H. Aldcroft (ed.), The Development of British Industry and Foreign Competition, 1875-1914 (Glasgow, 1968), p.229

Table 13

Distribution of Engineering Skills, 1914-33 (Federated Shops)

| Year | Skilled | Semi-Skilled | Unskilled |
|---|---|---|---|
| 1914 | 60 | 20 | 20 |
| 1921 | 50 | 30 | 20 |
| 1926 | 40 | 45 | 15 |
| 1933 | 32 | 57 | 11 |

Source: M.L. Yates, Wages and Working Conditions in British Engineering (1937), p.32

Table 14

Relative Wage Rates of Compositors and Selected Skilled Trades 1914-1938

| Year | TA Stab | LSC Stab | Engineers | Ship-wrights | Brick-layers | Engine-drivers |
|---|---|---|---|---|---|---|
| 1914 | 28-36/6 | 39 | 38.9 | 41.3 | 40.6 | 40.5 |
| 1923 | 62/6-77/6 | 89 | 55 (4/3) | 48.9 | 69.0 | 59.4 |
| 1938 | 62/6-77/6 | 89 | 69 (15/6) | 68.0 | 73.1 | 72.0 |

Note: The figures in parentheses represent the amount by which fitters' earnings exceeded basic rates according to surveys conducted by the EEF; the figure for 1923 actually refers to 1926. Figures for all other trades than compositors are weighted averages of district rates.

Sources: A.E. Musson, The Typographical Association (Oxford, 1954), p.190; Ministry of Labour, Report of an Enquiry into Apprenticeship and Training in U.K., 1925-6 (1928), Vol.I, p.36; K.G.J.C. Knowles and D.J. Robertson, 'Differences in the Wages of Skilled and Unskilled Workers, 1880-1950', Bulletin of the Oxford Institute of Statistics, 13(4) (1951), p.126; R.A. Hart and D.I. Mackay, 'Engineering Earnings in Britain, 1914-68', Journal of the Royal Statistical Society, Ser. A, Vol.138, (1975), pt.I, p.39

# BIBLIOGRAPHY

## ABBREVIATIONS

The following abbreviations are used to indicate the location of rare sources:

| | |
|---|---|
| BM | British Museum/British Library |
| EEF | EEF Archives, Broadway House, Tothill St., London SW1 |
| LSE | London School of Economics and Political Science (including Webb Collection) |
| MRC | Modern Records Centre, Warwick University |
| St. Bride's | St. Bride's Printing Library |

Note: Place of publication is London unless otherwise indicated.

Where serials or periodicals exist for the entire period 1890-1914, no dates have been given.

# I. ARCHIVE COLLECTIONS

## DEPARTMENT OF EMPLOYMENT LIBRARY

Fair Wages Advisory Council, Minutes of Proceedings

## EEF ARCHIVES

Executive Board Minutes, 1896-1914
General Letter, 1896-1914
Executive Reports, 1896-1914

Microfilmed Files:
Series A: National Agreements
Series I: Indemnity Fund
Series M: Machine Manning
Series P: Payment by Results

## LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE

Webb Trade Union Collection
Series EA: Manuscript Notes
Series EB: Printed Sources

## MODERN RECORDS CENTRE

Mss. 28/CO/1/1/12-13: LSC Trade Committee Minutes, (1906-14)
Mss. 28/CO/1/10/6: LSC Special Reports (MS.)
Mss. 39/TA/1: TA Executive Council Minutes

## ST. BRIDE'S LIBRARY

Southward Collection

## II. PRINTED REPORTS, ETC. OF TRADE UNIONS AND EMPLOYERS' ASSOCIATIONS

### A. PRINTING

Compositors' Chapel, Roworth, (C.J. Drummond, Father of the Chapel), Rules, 1877. LSE

Conference of the Provincial and London Printing and Kindred Trades Federations re Amalgamation, 13.12.1900. St. Bride's

FMP, Souvenir of 5th Annual Meeting, May 1905. St. Bride's

Leeds Typographical Society, Centenary 1810-1910, Leeds, 1910. St. Bride's

Linotype Company, Linotype Notes (1898-1914). St. Bride's

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